MEDICINE

Respiratory System — Questions

1. **Select the one FALSE statement among the following**
   a. The alveoli are lined predominantly by epithelial cells
   b. Type II pneumocytes are a source of surfactant
   c. Type I pneumocytes can divide to reconstitute type II pneumocytes after lung injury
   d. Surfactant reduces surface tension and counteracts the tendency of the alveoli to collapse

2. **As go from the top of the erect lung to the bottom**
   a. PACO2 at apex is higher than at the base
   b. PAO2 at base is lower than at the apex
   c. Ventilation increases as go up the lung
   d. Perfusion increases as go up the lung

3. **Intrapleural pressure is negative because**
   a. Chest wall and lungs recoil in opposite directions to each other.
   b. Transpulmonary pressure is negative
   c. Intrapulmonary pressure is always negative
   d. Pulmonary collapse is prevented by surfactants

4. **A bed-ridden patient on liquid diet develops aspiration pneumonia resulting a lung abscess. Which of the following is bronchopulmonary segment is most likely affected**
   a. Posterior segment of right upper lobe
   b. Inferior lingular of left upper lobe
   c. Apical of Left lower lobe
   d. Posterior segment of Right lower lobe

5. **MC cause of hemoptysis worldwide**
   a. Malignancy
   b. Tuberculosis
   c. Chronic bronchitis
   d. Pulmonary embolism

6. **A young man with tuberculosis presents with massive recurrent hemoptysis. For angiographic treatment which vascular structure should be evaluated first**
   a. Pulmonary artery
   b. Bronchial artery
   c. Pulmonary vein
   d. Superior venacava

7. **A 60 Y M smoker patient presented with haemoptysis and persistent cough. The CXR is normal. The next best investigation is**
   a. Reassure
   b. Chest CT
   c. Bronchoscopy
   d. Angiography

8. **DLCO is decreased in all except**
   a. Pulmonary fibrosis
   b. ILD
   c. Alveolar hemorrhage
   d. Severe emphysema

9. **What concentration of carbon monoxide is inhaled to assess DLco**
   a. 0.3%
   b. 0.5%
   c. 0.75%
   d. 1.0%

10. **A 55/M presents with progressive shortness of breath. Other than a history of heavy tobacco use, the patient has a benign past medical history. The trachea appears to be deviated toward the left. Breath sounds and movements are absent twothirds of the way up on the right side of the chest. Percussion of the right chest reveals lessresonance than normal. Which of the following diagnoses is most likely?**
    a. Bacterial pneumonia
    b. Viral pneumonia
    c. Bronchial obstruction
    d. Pleural effusion

11. **All of the following are expected PFT changes in a patient with interstitial lung disease except**
    a. ↓ TLC
    b. ↓ RV
    c. ↓Vital capacity
    d. ↓ FEV1/FVC ratio

12. **A 70-year-old man and heavy smoker presents with progressive shortness of breath. Other than a Breath sounds are absent on right side of the chest. Percussion of the right chest reveals a dull note with trachea deviated towards right. Which of the following diagnoses is most likely?**
    a. Pneumothorax
    b. Viral pneumonia
    c. Bronchial obstruction
    d. Pleural effusion

13. **All of the following are expected PFT changes in a patient with kyphoscoliosis except**
    a. ↓ TLC
    b. Normal RV
    c. ↑ RV/TLC ratio
    d. ↓ FEV1/FVC ratio

14. **A 35-year-old, non smoker male seeks medical attention for breathlessness on exertion. One sibling died of respiratory failure at 40 years of age. Physical examination reveals him to be tachypneic as he exhales through pursed lips. Chest x-ray show flattened diaphragms with peripheral attenuation of bronchovascular markings that is most noticeable at the lung bases.Expected resultsof the pulmonary function testing of the man described above would include**
    a. Increased FeV1
    b. Increased total lung capacity
    c. Reduced functional residual capacity
    d. Increased vital capacity

15. **In a patient with severe bullous emphysema, the most appropriate method for measuring lung volumes is**
    a. Body plethysmography
    b. Diffusing capacity of carbon monoxide
    c. Spirometry
    d. Helium dilution

1. c	2. b	3. a	4. a	5. b	6. b	7. b	8. c	9. a	10. d	11. d	12. c	13. d	14. b	15. a

16. A 74-year-old man is evaluated for a 5-year history of gradually progressive dyspnea and dry cough without wheezing or hemoptysis. For the past 2 years he has had pain and occasional swelling in both knees. He has not had fever or lost weight. He smoked one pack of cigarettes a day from the age of 18 to 60 years. He worked as an roofer for 40 years. Physical examination shows no digital clubbing or cyanosis. Auscultation of the lungs reveals bilateral end-inspiratory crackles. Pulmonary function testing shows:

Total lung capacity	67% of predicted
Residual volume	72% of predicted
FVC	65% of predicted
FEV1	75% of predicted
FEV1/FVC ratio	89% (Normal)
DLCO	52% of predicted

His chest radiograph is suggestive of Bilateral lower zone predimonant lesions. Which of thefollowing is the most likely diagnosis?

a. Emphysema
b. Asbestosis
c. Pneumonia
d. Bronchogenic Carcinoma

17. Which one of the following is the most likely diagnosis from this x-ray?

a. Right hydropneumothorax
b. Hydatid cyst right lung
c. Right pleural effusion
d. Perforated abdominal viscus

18. A 45-year-old, HIV-positive male is admitted to the hospital because of fever and severe dyspnoea. Radiography shows extensive, bilateral, patchy lung infiltrates. Arterial blood gas analysis on room air reveals a PaO2 45 mmHg, PaCO2 of 20 mmHg and pH of 7.56. He is intubated, and positive pressure ventilation is initiated with an inspiratory oxygen fraction (FIO2) of 0.5 Arterial blood gas analysis after half anhour demonstrates no significant improvement in oxygenation. What is the cause ofthe hypoxemia?

a. Hypoventilation alone
b. Hypoventilation and ventilation-perfusion mismatch
c. Shunt
d. Ventilation-perfusion mismatch

19. Most common mechanism of hypoxemia

a. Hypoventilation
b. Diffusion defect
c. Shunt
d. Ventilation-perfusion mismatch

20. A 65-year-old man seeks medical attention for breathlessness on exertionandchronic cough that have worsened progressively over the past12 months. On auscultation bilateral fine crepitations are heard. On HRCT, bilateral reticular opacities and clustered basal honeycombing arefound. Expected results of the pulmonary function testing of the man described above would include

a. Increased FeV1
b. Increased total lung capacity
c. Reduced functional residual capacity
d. Increased vital capacity

21. All of the following are typically characterized as an obstructive lung disease EXCEPT:

a. Myasthenia gravis
b. Asthma
c. Bronchiectasis
d. Chronic bronchitis

22. Match the pulmonary function test results to Idiopathic Pulmonary hypertension which it is most likely to be found.

a. Increased total lung capacity (TLC), decreased vital capacity (VC), decreased FEV1/FVC ratio
b. Decreased TLC, decreased VC, decreased residual volume (RV), increased FEV1/FVC ratio,
c. Decreased TLC, increased RV, normal FEV1/FVC ratio, decreased DLCO
d. Normal TLC, normal RV, normal FEV1/FVC ratio, decreased DLCO

23. At what lung volume does the outward recoil of the chest wall equal the inward elastic recoil of the lung?

a. Expiratory reserve volume
b. Functional residual capacity
c. Residual volume
d. Tidal volume

24. A 50-year-old female with an unremarkable previous medical history reports progressive dyspnoea. The chest CT is shown below. The patient undergoes bronchoscopy with bronchoalveolar lavage. The effluent appears milky. The cytopathology shows amorphous debris with periodic acid Schiff (PAS)-positive material. What is the diagnosis?

a. Bronchiolitis obliterans organizing pneumonia
b. Desquamative interstitial pneumonitis
c. Pneumocystis carinii pneumonia
d. Pulmonary alveolar proteinosis

16. b	17. a	18. c	19. d	20. c	21. a	22. d	23. b	24. d

25. What treatment is most appropriate for pulmonary alveolar proteinosis?

a. Whole Lung lavage
b. Prednisone
c. Prednisone and cyclophosphamide
d. Bronchial thermoplasty

26. A 25/M was found unresponsive at home. He has a history of intravenous drug abuse and human immunodefciency virus (HIV) with medical noncompliance. His last CD4 count was <200/ µL. A blood gas on room air reveals pH of 7.16, partial pressure of carbon dioxide (PCO2) of 70 mmHg, and partial pressure of oxygen (PO2) of 55 mmHg. Which of the following respiratory failure is predominantly seen?

a. Type 1
b. Type 2
c. Type 3
d. Type 4

27. All of the folllowing are true about respiratory failure in ILD except?

a. Decreased PaO2
b. Decreased PaCO2
c. Type 1 is seen
d. Normal A-a gradient

28. Type 1 respiratory failure best relates to which of the following

a. Alveolar hypoventilation
b. Alveolar flooding
c. Hypoperfusion of respiratory muscles
d. Lung atelectasis

29. Type 4 respiratory failure best relates to which of the following

a. Alveolar hypoventilation
b. Alveolar flooding
c. Hypoperfusion of respiratory muscles
d. Lung atelectasis

30. Following is an contraindication for NIV except

a. Cardiac or respiratory arrest
b. Severe encephalopathy
c. Severe gastrointestinal bleed
d. COPD exacerbation

31. Regarding Non-invasive ventilation (NIV) all are true except :

a. Decreases work of breathing
b. Can reduce the need for intubation and hospital morbidity.
c. Failure is associated with a higher mortality in respiratory failure.
d. NIV hashad limited success in patients with acute hypercapnic respiratory failure.

32. A 51-year-old man develops pancreatitis associated with the passage of a gallstone. Two days later he becomes anxious, tachypneic, and short of breath. An emergency chest x-ray demonstrates diffuse, bilateral interstitial and alveolar infiltrates. In this case, adult respiratory distress syndrome can be distinguished from cardiogenic pulmonary edema by which of the following?

a. Measurement of lung water
b. Measurement of arterial PCO2
c. Measurement of pulmonary artery wedge pressure
d. Measure of lung compliance

33. Which of the following is not a part of definition of ARDS?

a. Severe dyspnea
b. Hypercapnia
c. Hypoxemia
d. Diffuse pulmonary infiltrates leading to respiratory failure

34. Most characteristic feature of ARDS

a. Diffuse alveolar damage
b. Hypoxemia
c. Hypocapnia
d. Surfactant deficiency

35. Diagnostic criteria for moderate ARDS includes all except :

a. PaO2/ FiO2 ≤ 200 mmHg
b. PaO2/ FiO2 ≤ 100 mmHg
c. Acute onset
d. PCWP ≤ 18MMHg

36. In ARDS what measure of tidal volume is preferred?

a. 6ml/kg
b. 9 ml/kg
c. 12 ml/kg
d. 15ml/kg

37. Inverse ratio mechanical ventilation refers to

a. Prone position ventilation
b. Inspiration time > expiration time
c. Expiratory time > inspiratory time
d. Ventilating at relatively high respiratory rates

38. All of the following conditions may predispose to pulmonary embolism except

a. Protein S defeciency
b. Malignancy
c. Obesity
d. Progesterone

39. In acute Pulmonary embolism most common ECG finding

a. S1Q3T3 pa ttern
b. P pulmonale
c. Sinus tachycardia
d. Right axis deviation

40. All are true for Pulmonary Embolism except

a. Plasma D- dimer assay has high negative predictiv value
b. ABG lacks diagnostic utility
c. Westermarks sign is dilated pulmonary artery
d. A normal or nearly normal chest x-ray often occu in PE.

25. a	26. b	27. d	28. b	29. c	30. d	31. d	32. c	33. b	34. a	35. b	36. a	37. b
38. d	39. c	40. c										

41. Which of the following is principal imaging test for diagnosis of PE

a. Lung scanning
b. Chest xray
c. Chest CT with IV CONTRAST
d. 2D ECHO

42. All are true regarding Pulmonary embolism except

a. The most common symptom is unexplained breathlessness
b. Massive PE accounts for 50–60% of cases
c. Submassive PE accounts for 20–25% of patients
d. The bestknown indirect sign of PE on transthoracic echocardiography is McConnell's sign

43. Treatment of choice in a patient with massive PE in shock is

a. Thrombolysis
b. LMWH
c. Surgical embolectomy
d. Aggressive fluid therapy

44. Which one of the following conditions is most likely in a patient with the following hemodynamic data? Pressures: RA= 12mm.Hg. RV= 50/12mm.Hg. PA=50/1 5mm.Hg. PA wedge pressure=8mm.Hg. Aorta=80/60, Cardiac Index = 1 .4 SVR= 1800. PVR=500

a. Hypovolemic shock following gastroenteritis
b. Acute massive pulmonary embolism
c. Acute MI with LVF and cardiogenic shock
d. Early septic shock

45. Gold standard both to establish the diagnosis of Pul HTN

a. DLCO
b. CT chest
c. 2D Echo
d. Right heart catheterisation

46. Among CTDs PAH is commonest in which disease?

a. SLE
b. RA
c. Dermatomyositis
d. Scleroderma

47. Pre capillary pulmonary hypertension is defined as

a. mPAP>25MMHG, PCWP >15 mmhg
b. mPAP>25MMHG, PCWP < 15 mmhg
c. mPAP>15MMHG, PCWP >25 mmhg
d. mPAP< 25MMHG, PCWP <15 mmhg

48. Most common cause of Pulmonary Hypertension

a. WHO Group I
b. WHO Group II
c. WHO Group III
d. WHO Group IV

49. What is the most common cause of typical pneumonia?

a. S. pneumoniae
b. Klebsiella
c. Pseudomonas
d. Mycoplasma

50. What is the most common cause of atypical pneumonia?

a. S. aureus
b. Klebsiella
c. Pseudomonas
d. Mycoplasma

51. Which of the following is false about Atypical pathogens causing CAP?

a. May not be cultured on standard media
b. May not be seen on gram stain
c. Good response with Beta lactam treatment
d. May show interstitial pattern on CXR

52. Most common bacterial cause implicated in AE COPD is

a. H.influenza
b. S. aureus
c. Klebsiella
d. Mycoplasma

53. A 28 yr female had diarrhoea, confusion, high grade fever with bilateral pneumonitis.
The diagnosis:

a. Legionella
b. Nesseria meningitis
c. Streptococcus pneumonia
d. Klebsiella pneumonia

54. Regarding Pneumocystis jirovecipneumonia in HIV-infected patients, which of the following statement is false?

a. Most patients have CD4 counts <200 cells per μL at the time of diagnosis of their first episode of P. jiroveci pneumonia.
b. Most patients with P. jiroveci pneumonia will have an elevated serum lactate dehydrogenaselevel.
c. Arterial blood gases in patients with P. jiroveci pneumonia frequently reveal respiratory alkalosisand a widened alveoloarterial oxygen tension difference.
d. A normal chest radiograph rules out the diagnosis.

55. The most common causative organism for lobar pneumonia is

a. Staphylococcus aureus
b. Streptococcus pyogenes
c. Streptococcus pneumoniae
d. Haemophilus influenzae

56. A 30 year previously healthy male came with 2 days fever and cough with purulent sputum. Examination reveals an impaired note with bronchial breathing and crackles and increased vocal resonance. He is alert. BP=100/70. Respiratory rate =24/min. Blood urea=20 mg%. Which of the following is the best treatment for him?

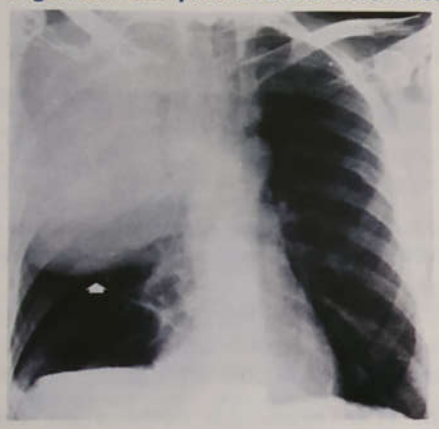
a. OP treatment with Clarithromycin 500mg BID for one week
b. Admit in ward and give Levofloxacin orally 750mg OD + Inj. Ceftriaxone 1G IV BID for one week
c. Admit in ICCU and give Inj. Ceftriaxone 2G IV OD + IV levofloxacin 750mg OD for one week
d. Piperacillin + tazobactam 4.5 G qid for one week

41. c	42. b	43. a	44. b	45. d	46. d	47. b	48. b	49. a	50. d	51. c	52. a	53. a
54. d	55. c	56. a										

57. All of following features are seen in the viral pneumonia except :

a. Presence of interstitial inflammation
b. Predominance of alveolar exudates
c. Bronchiolitis
d. Multinucleate gaint cells in the bronchiolar wall

58. 50-year-old woman was admitted to the hospital with fever and cough. She has had no past medical problems and was well untilabout 3 days ago. Physical examination is remarkable for a temperature of 39_C and the presence of bronchial breath sounds on right side chest. Except for an elevated white count with a leftshifted differential, her blood tests are normal. Chest radiography reveals Right sided opacity.Which of the following organism can produce the below feature?



a. Pseudomonas aeruginosa
b. E.coli
c. Klebsiella pneumonia
d. Staphylococcus aureus

59. A 50 year old male was diagnosed with Mycoplasma pneumonia. The choice of a suitableantibiotic includes all of the following EXCEPT

a. Beta-lactams
b. Macrolides
c. Fluoroquinolones
d. Tetracycline

60. Drug that can be used in treatment in PCP pneumonia are all except

a. Cotrimoxazole
b. Pentamidine
c. Dapsone
d. Fluoroquinolones.

61. A 40-year-old alcoholic develops cough and fever. Chest x-ray shows an air-fluid level in the superior segment of the right lower lobe. The most likely etiologic agent is

a. Streptococcus pneumoniae
b. Haemophilus influenzae
c. Legionella
d. Anaerobes

62. Most commonorganism agent for early onset noscomial pneumonia

a. Staph aureus
b. Strept. pneumonia
c. Klebsiella
d. Pseudomonas

63. Most common cause of pleural effusion is

a. Trauma
b. Left ventricular failure
c. pleural malignancy
d. postoperative haemorrhage

64. Which of the following is true for exudative pleural effusions?

a. Pleural fluid protein / serum protein >0.5
b. Pleural fluid LDH / serum LDH >0.6
c. Pleural fluid LDH > two-thirds normal upper limit for serum
d. All of the above

65. Which of the following is false for 'Hepatic Hydrothorax'?

a. Occur in ~5% of patients with cirrhosis & ascites
b. Due to direct movement of peritoneal fluid through small holes in diaphragm into pleural space
c. Effusion is usually right sided and exudative
d. Transjugular intrahepatic portal systemic shunt helpful

66. Factors indicating the likely need for a procedure more invasive than a thoracentesis are all except

a. Loculated pleural fluid
b. Pleural fluid pH < 7.40
c. Pleural fluid glucose <60 mg/dL
d. Positive Gram stain or culture of pleural fluid

67. All of the following are true except

a. Malignant pleural effusions secondary to metastatic disease are the second most common type of exudative pleural effusion.
b. In many parts of the world, the most common cause of an exudative pleural effusion is tuberculosis(TB)
c. Thepleural fluid is almost always a transudate in Pulmonary embolism
d. The treatment of choice for most chylothoraxes is insertion of a chest tube plus the administration of octreotide.

68. Most commonly Tuberculous pleural effusions are due to?

a. Hematogenous spread of tubercular bacilli
b. Contiguous spread of tubercular bacilli
c. Hypersensitivity reaction to tuberculous protein in pleural space
d. Diaphragmatic injury by TB bacilli

69. Which of the following is false about tuberculous pleural effusion?

a. Contains predominantly small lymphocytes
b. Adenosine deaminase level > 40 IU/L
c. Interferon gamma level >140 pg/mL
d. Predominantly mesothelial cells

70. The most common cause of chylothorax is?

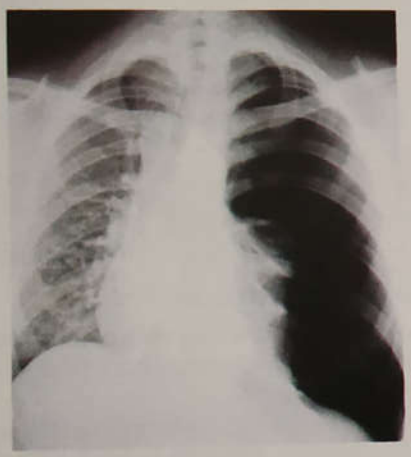
a. Malignancy
b. Trauma
c. Developmental anomaly
d. Necrotizing infection

57. b	58. c	59. a	60. d	61. d	62. b	63. b	64. d	65. c	66. b	67. c	68. c	69. d	70. b

71. Following are true about tension pneumothorax except

a. High peak inspiratory pressures during mechanical ventilation strongly suggest the diagnosis.
b. Pressure in the pleural space is positive throughout the respiratory cycle.
c. decreased venous return to the heart and reduced cardiac output.
d. hyperresonance to percussion, and shift of the mediastinum to the ipsilateral side.

72. A 58-year-old male smoker with a smoking history of 50 pack-years presents to the emergencydepartment after an episode of acute chest pain and shortness of breath. On physical examination, there ismarked reduction of the breath sounds in the left hemithorax. His chest radiograph is shown below. Recentlung function tests had revealed an FVC of 70% predicted, an FEV1 of 45% predicted What is the most appropriate next step in the management of this patient?



a. Observation
b. Administration of high-flow oxygen
c. Simple needle aspiration
d. Insertion of a chest tube

73. In asthma airway inflammation is predominantly seen in

a. Trachea
b. bronchi
c. Terminal bronchiole
d. Respiratory bronchiole

74. Most common trigger to asthma

a. Dermatophagoides
b. Pollen grain
c. Fungal spore
d. Air pollution

75. Following statements about non atopic asthma is false

a. Skin test negative for common inhalant allergens
b. Normal Serum IgE levels
c. Have mild asthma
d. Late age of onset

76. Thunderstorm asthma is due to

a. Fungal spores
b. Pollen grains
c. Domestic pets
d. Cockroaches

77. Most common trigger for Acute severe asthma exacerbation

a. Influenza virus
b. rhino virus
c. Mycoplasma
d. chlamydia

78. Which of the following is false about exercise induced asthma

a. Begins after exercise has ended
b. Recovery can occur in 30 min
c. Best prevented by inhaled glucocorticoids
d. More worse in hot and humid climate than cold and dry climate

79. Level of NO in expired air in asthma is related to?

a. Bronchoconstriction
b. Mucus hypersecretion
c. Eosinophilic inflammation
d. Airway hyper responsiveness

80. Reversibility is defined as increase in FeV1 15 minutes after inhaled SABA of

a. > 12% or 50 ml
b. >12% or 100 ml
c. > 12 % or 150 ml
d. > 12 % or 200 ml

81. In a patient with clinical signs of asthma which of the following tests will suggest diagnosis?

a. Increase in FEV1/FVC
b. > 200 ml increase in FeV1 after methacholine
c. Diurnal variation PEFR > 20%
d. Reduction in FeV1> 20% after bronchodilators

82. A patient with bronchial asthma on artificial ventilation requires.

a. Low inspiratory flow
b. Inverse ratio ventilation
c. I:E ratio 1:3
d. Prone ventilation

83. Which of the following doesn't belong to controller therapy of asthma

a. LABA
b. ICS
c. Cromolyn sodium
d. Antileukotrines

84. Most common reason for poor control of asthma is

a. Continued exposure to allergens
b. Use of COX inhibitors
c. non compliance with medication
d. Gastro esophageal reflux

85. Corticosteroid resistant asthma is defined as failure to respond to what dose and duration of oral prednisolone

a. 20 mg OD for 2 weeks
b. 40 mg OD for 2 weeks
c. 80 mg OD for 2 weeks
d. 100 mg OD for 2 weeks

86. Treatment of choice in type 2 brittle asthma is

a. Oral corticosteroids
b. Continuous infusion of Beta 2 agonists
c. Continuous infusion of Cortico steroids
d. Sub cutaneous epinephrine

71. d	72. d	73. b	74. a	75. c	76. b	77. b	78. d	79. c	80. d	81. c	82. c	83. a
84. c	85. b	86. d										

87. Which of the following structures in the lung is likely to be affected the most in a patient who smoked a pack and half of cigarettes per day for 30 years and developed centrilobularemphysema

a. Alveolar sac
b. Terminal bronchiole
c. Alveolar duct
d. Respiratory bronchiole

88. Obstructive lung disease is diagnosed if

a. Fvc/Fev1 < 0.7
b. Fev1/Fvc< 0.7
c. Fev1/Fvc> 0.7
d. Fev1/Fvc< 0.9

89. Which of the following is false?

a. Pan acinar emphysema seen in alpha 1 AT deficiency
b. Centri acinar emphysema is seen in smokers
c. Pan acinar emphysema commonly involves upper lobes
d. Centriacinar emphysema involves upper lobes and superior segment lower lobes

90. Which of the following regarding Roflumilast is false?

a. PDE4 inhibitor
b. Anti inflammatory properties
c. Acutebronchodilatory effect
d. Causes weight loss

91. True regarding 02 therapy in COPD

a. Indicated if Resting PaO 2 of < 65 mmHg
b. Indicated if Resting PaO 2 of 56-59 mmHg with evidence of end-organ dysfunction such as pulmonary hypertension.
c. Oxygen should be prescribed to hypoxemic patients, with a target SpO2 between 94 - 98%.
d. Supplemental O2 did not demonstrate decrease mortality rates in patients with COPD

92. Which of the following is not a indicator of BODE score?

a. Breathing index
b. Airflow Obstruction
c. Dyspnea
d. Exercise capacity

93. Following comes under very severe COPD according to GOLD staging of COPD

a. FEV1 < 80 % Predicted
b. FEV1 < 60 % Predicted
c. FEV1 < 40 % Predicted
d. FEV1 < 30 % Predicted

94. Current definitive test for establishing the presence or absence of emphysema is

a. Chest Xray
b. Spirometry
c. CT chest
d. BODE index

95. Which of the following is not a feature of COPD?

a. Expiratory wheezing
b. Clubbing
c. Hypercapnia
d. Right heart failure

96. The only pharmacologic therapy demonstrated to unequivocally decrease mortality rates in patients with COPD

a. Corticosteroids
b. Oxygen
c. Bronchodilators
d. Theophylline

97. Bronchiectasis more pronounced in upper lung fields is commonly seen in

a. ILD
b. Cystic fibrosis
c. Chronic reccurrent aspiration
d. Mycobacterium avium infection

98. Bronchiectasis more pronounced in lower lung fields is commonly seen in

a. Post radiation fibrosis
b. Cystic fibrosis
c. Chronic reccurrent aspiration
d. Mycobacterium aviuminfection

99. In patients with severe structural lung disease, such as bronchiectasis the infective agent most likely to cause pneumonia is

a. H. Influenza
b. Pneumococcus
c. Legionella
d. P. aeruginosa

100. Which of the following is the most common infective cause of diffuse bronchiectasis worldwide?

a. Pseudomonas
b. Aspergillus
c. Adeno Viral infection
d. Mycobacterium tuberculosis infection

101. Which of the following is associated with cystic fibrosis?

a. Impaired fertility due to immobile sperm
b. Systemic hypertension
c. Steatorrhea
d. Dextrocardia

102. Suppressive antibiotic which can be given for bronchiectasis

a. Oral ciprofloxacin
b. Nebulised tobramycin
c. Azithromycin
d. All

103. Three layered sputum seen in

a. Klebsiella pneumonia
b. Silicosis
c. Ca lung
d. Bronchiectasis

104. The following are main diagnostic criteria for Allergic Bronchopulmonary Aspergillosis EXCEPT

a. Pulmonary infiltrate
b. Distal bronchiectasis
c. Bronchial asthma
d. Peripheral eosinophilia

87. d	88. b	89. b	90. c	91. b	92. a	93. d	94. c	95. c	96. b	97. b	98. c	99. d
100. d	101. c	102. d	103. d	104. b								

105. Hot tub lung is related to

a. Isocyanates
b. Mycobacterium avium complex
c. Molds in air conditioners
d. Legionella

106. Causative agent of farmer's lung is:

a. Thermophilus actinomycetes
b. Aspergillus
c. Penicillium glabrum
d. Rhizopus

107. Endobronchial saprophytic pulmonary aspergillosis presents in a patient with prior

a. Pulmonary TB
b. Sarcoidosis
c. Histoplasmosis
d. All

108. Regarding Acute eosinophilic pneumonia true except

a. Acute respiratory failure thatoften requires mechanical ventilation
b. Diffuse pulmonary infiltrates,
c. Bronchoalveolar lavage eosinophilia >25%
d. Poor clinical response to corticosteroids

109. Regarding Chronic eosinophilic pneumonia true except

a. Most patients are female nonsmokers with a mean age of 45
b. Negative photographic pulmonary edema" appearance on chest x-ray and chest CT is pathognomonic
c. mean BALeosinophil counts of ~60%.
d. Lung biopsy is often required to establish adiagnosis

110. What is the strongest predictor of the diagnosis of HP?

a. Symptoms 4-8 hours after exposure
b. Recurrent episodes of symptoms
c. Positive precipitins
d. Exposure to a known offending antigen

111. Which of the following is a known consequence of asbestos exposure?

a. The same increased risk of mesothelioma as cigarette use
b. Pleural effusions, often initially benign
c. An increased incidence of both adenocarcinoma of the lung and small cell carcinoma of the lung
d. An obstructive pattern, typically revealed by pulmonary function testingB. Pleural effusions, often initially benign

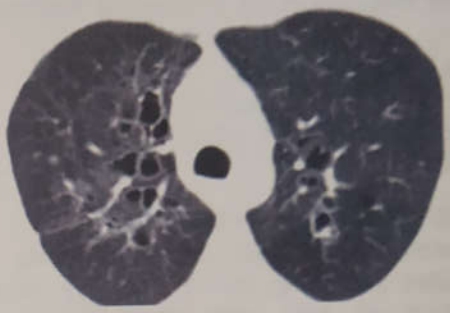
112. Regarding acute silicosis are true except

a. The clinical and pathologic features of acute silicosis are similar tothose of pulmonary alveolar proteinosis
b. patients with silicosis are at greater risk ofacquiring lung infections that involveMycobacterium tuberculosis,atypical mycobacteria and fungi)
c. Potential clinical complication of silicosis is autoimmune connective tissuedisorders such as rheumatoid arthritis and scleroderma
d. Calcification of hilar nodes may occurs in all cases andproduces a characteristic "eggshell" pattern.

113. 5. A 56 year old coal mine worker presented with joint pains, cutaneous nodules and occasional cough with dyspnoea. His chest x-ray showed multiple small nodules in both lungs with cavitation and calcification. Most likely diagnosis is:

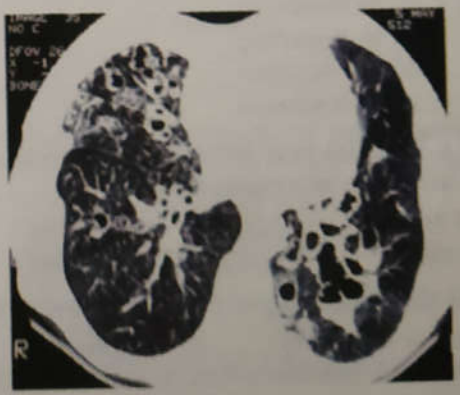
a. Silicosis
b. Caplan's syndrome
c. Sjogren's syndrome
d. Sarocidosis

114. A 37 year-old patient presents with adult-onset asthma. Due to increased production of brownish sputum production, and perihilar and upper lobe opacities on a conventional chest radiograph. A CT image is shown below.Which of the following statements concerning a suspected underlying disorder is correct?



a. Fungal invasion of the bronchial mucosa is typically found in bronchoscopic biopsy specimens.
b. Total serum IgE and blood eosinophils are typically normal.
c. Patients with cystic fibrosis are more often affected than healthy persons.
d. Immunosuppressive therapy should be started with a combined regimen of glucocorticoids and cyclophosphamide or a monoclonal antibody against CD20 receptor.

115. This patient came with chronic productive cough and clubbing and coarse rales. What is the diagnosis of the CT Scan below :



a. Interstitial fibrosis
b. Bilateral sacular bronchiectasis
c. Miliary tuberculosis
d. Multiple cavitating secondaries

105. b	106. a	107. d	108. d	109. d	110. d	111. b	112. d	113. b	114. c	115. b

116. A 55-year-old man presents with a history of cough and massive haemoptysis of 2 weeks' duration. Six months ago he was diagnosed with sinusitis and started on some nasal drops. His CXR shows bilateral infiltrates and nodules with cavitations. He has never smoked and works in a zoo. What is the most likely diagnosis?

a. Bronchogenic carcinoma
b. Pulmonary tuberculosis
c. Cryptogenic fibrosing alveolitis
d. Wegener's granulomatosis

117. A 20 years old women presents with a dry cough and dyspnoea. A Chest X-ray has beenperformed and demonstrates bilateral hilar lymphadenopathy with bilateral well defined 3mmparenchymal nodules. The diagnosis is most likely to be?

a. Stage 0 sarcoidosis
b. Stage 1 sarcoidosis
c. Stage 2 sarcoidosis
d. Stage 3 sarcoidosis

118. A Female presents with history of progressive breathlessness. Histology shows heterogenouspatchy fibrosis with several fibroblastic foci. The most likely diagnosis?

a. Cryptogenic Organizing Pneumonia.
b. Non specificinterstitialpneumona.
c. Usual interstitial pneumonia.
d. Desquamativeinterstitial pneumonia.

119. All are correct regarding sarcoidosis except

a. Cavity commonly seen
b. Spontaneous remission is usual
c. Tuberculin test is negative
d. Bilateral hilar lymphadenopathy

120. A 75/M is referred for dyspnoea on exertion and chronic cough that have worsened progressively over the past12 months. PFT shows restriction with DLCO of 38% predicted. The chest radiograph shows bilateral patchyinfltrates, mostly at the lung bases. On HRCT, bilateral reticular opacities and clustered basal honeycombing arefound. Open-lung biopsy reveals randomly distributed fibrotic foci surrounded by normal lung parenchyma. What isthe most appropriate therapy for this patient?

a. Pirfenidone
b. Bosentan
c. Acetylcysteine
d. Prednisolone/azathioprine

121. ILD that is less prevalent in smokers

a. RBILD
b. Acute eosinophilic pneumonia
c. Pulmonary hemorrhage syndrome
d. Hypersensitivity pneumonitis

122. Which of the following is not a component of polysomnography?

a. EEG
b. EOG
c. Intra arterial oxygen monitoring
d. Limb movements

123. Which of the following is not a recognized complication of obstructive sleep apnea?

a. Impotence
b. Arrythmias
c. Cerebro vascular disease
d. Systemic hypertension

124. Which of the following statements concerning obstructive sleep apnea syndrome is true?

a. Men and women are equally affected.
b. Cor pulmonale and not systemic hypertension is usually seen.
c. Sedatives are often useful in the improvement of quality of sleep.
d. Personality changes may be the presenting complaint

125. Most common ILD pattern in Rheumatoid arthritis

a. UIP
b. NSIP
c. AIP
d. RBILD

126. Shrinking lung syndrome is a manifestation of which CTD?

a. RA
b. SLE
c. Sjogrens syndrome
d. Polymyositis

127. What would be the expected finding on bronchoalveolar lavage in a patient with diffuse alveolar hemorrhage?

a. Milky appearance with foamy macrophages
b. Ferruginous bodies
c. Hemosiderin laden macrophages
d. Lymphocytosis with an elevated CD4:CD8 ratio

128. Which of the following is correct regarding small cell lung cancer compared to non-small cell lung cancer?

a. Small cell lung cancer is more radiosensitive.
b. Small cell lung cancer is less chemosensitive.
c. Small cell lung cancer is more likely to present peripherally in the lung.
d. Small cell lung cancer has better prognosis

129. An oncologist is considering treatment options for patients with lung cancer, including small-molecule therapy targeting the epidermal growth factor receptor (EGFR). Which ofthe following patients is most likely to have an EGFR mutation?

a. A 23-year-old man with a hamartoma
b. A 33-year-old woman with a carcinoid tumor
c. A 45-year-old woman who has never smoked with an adenocarcinoma
d. A 56-year-old man with a 100-pack-year history of tobacco use with small-cell lung carcinoma

116. d	117. c	118. c	119. a	120. a	121. d	122. c	123. a	124. d	125. a	126. b
127. c	128. a	129. c								

130. Which of the following statements about lung carcinoma is true

a. squamous cell variant accounts for 70% of all lung cancers
b. Oat cell variant typically presents with cavitation
c. Oat cell variant is typically associated with hilar adenopathy
d. adenocarcinoma variant is typically central in location

131. Most common symptom of lung cancer

a. Hemoptysis
b. Cough
c. Dyspnea
d. Chest pain

132. A 60 / M , known case of bronchogenic carcinoma presenting with polyuria, pain abdomen, nausea, vomiting,altered sensorium was found to have hypercalcemia .The histological variant can be mostly

a. Small cell
b. Large cell
c. Adenocarcinoma
d. Squamous cell

133. All are the risk factor of ca lung except

a. Decreased fruit intake in childhood
b. Tuberculosis
c. Vitamin C deficiency
d. Radon

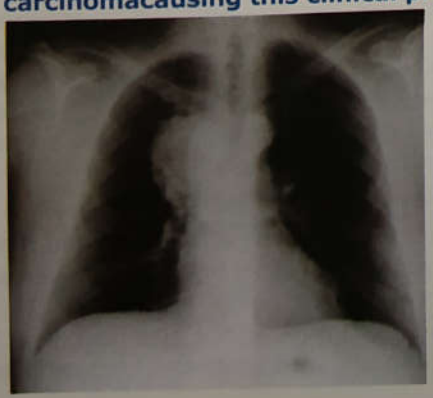
134. Most common primary lung tumor arising in women, in never-smokers, and in individuals younger than 45 years of age.

a. Squamous cell
b. Large cell
c. Adenocarcinoma
d. Small cell

135. Hypertrophic pulmonary osteoarthropathy are most commonly associated with

a. Adenocarcinoma
b. Squamous
c. Small cell
d. Large cell

136. A 60-year-old restaurant owner with a 45 pack-year history of cigarette smoking presents with a productive cough with blood-streaked sputum. His physical examination is normal. His HB : 12 g% , Serum Na+ is 124 meq/L , Serum K+ is 4.2 meq/L, Cl- is 97 meq/L and bicarbonate is 24 mmol/L-1. RFT & LFT normal.CXR shown below. Bronchoscopy reveals a partially occluded right mainstem bronchus with mass. Brush cytologyspecimens are positive for tumour cells. Which of the following is the most likely lung carcinomacausing this clinical presentation?



a. Large cell undifferentiated carcinoma
b. Adenocarcinoma with lepidic growth
c. Squamous cell carcinoma
d. Small cell carcinoma

137. A 25 Yr old male with fever, cough and expectoration, SOB 2 months duration. CECT chest showing B/L upper lobe fibrotic lesions, mediastinal necrotic Lymphnodes with peripheral rim enhancement. Diagnosis can be :

a. Sarcoidosis
b. TB
c. Lymphoma
d. Silicosis

138. The following are true regarding Interferon Gamma release assays in tuberculosis EXCEPT

a. Antigens from all BCG strains and nontuberculous mycobacteria are present in the assay
b. Specificity of the test is superior to Tuberculin skin test in BCG vaccinated patients
c. Sensitivity is comparable to Tuberculin skin test
d. Sensitivity is reduced in HIV infection with low CD4 count

139. A 45-year-old HIV-positive male (CD4 cells 250 per uL), is referred to you because of a tuberculin skin test with 7-mm induration. He has no specifc complaints, has not had contact with tuberculosis patients in the past. Chest radiography is normal. Which one of the following is the most appropriate next step?

a. Perform an inteferon-γ release assay (IGRA).
b. No further action is necessary at this time.
c. Repeat the skin test if CD4 cells fall below 200/uLd.
d. Prophylactic therapy with isoniazid for 6 months.

140. Regarding cryptic miliary tuberculosis all are correct EXCEPT

a. It has a chronic course
b. It causes mild intermittent fever and anemia
c. Meningeal involvement precedes death
d. It is commonly seen in children

141. All of the following are true about the therapy of tuberculosis except:

a. Flu like syndrome is usually seen with rifampicin being taken on daily basis
b. Ethambutol accumulates in renal failure
c. Hyperuricemia is recognised side effect of pyrazinamide
d. Red green colour impairement is an early sign of ethambutol induced optic neuritis

142. Extensive drug resistant tuberculosis (XDR-TB) is defined as multidrug resistant TB (MDR- TB) strain that becomes resistant to

a. Pyrazinamide and any one of the fluoroquinolones
b. Ethambutol and any one of the fluoroquinolones
c. Any one of second line aminoglycosides and one of the Fluoroquinolones
d. Vancomycin and one of the fluoroquinolones

130. c	131. b	132. d	133. c	134. c	135. a	136. d	137. b	138. a	139. d	140. d
141. a	142. c									

143. A patient presents with following parameters ph 7.5, pco2 30 mmhg, PaO2 102mmhg and hco316meq/1. Which of following correctly describes the abnormality?

a. Respiratory alkalosis.
b. Metabolic alkalosis.
c. Respiratory acidosis.
d. Metabolic acidosis.

144. A 60 year-old man with amyotrophic lateral sclerosis is brought into clinic by his family who are concerned that he is more somnolent than normal. On further history, they report that he has been having problems with morning headaches and does not feel very refreshed when he wakes up. An arterial blood gas is performed and reveals: pH= 7.34, PCO2= 60, PO2 70, HCO3- =34.

a. Acute respiratory acidosis
b. Compensated respiratory acidosis
c. Respiratory and metabolic acidosis
d. Partially compensated respiratory acidosis

145. A 39 yr old man is experiencing labored breathing and mental obtundation comes to the emergency department. Physical examination is unremarkable. Laboratory studies are as follows : Serum sodium=134 mEqL, serum potassium=3.7 mEqL, serum chloride=106mEqL, plasma bicarbonate [HCO3]=6mEq/L, arterial pH=7.3, and PCO2=19mmHg. These findings indicate which of the following acidbase disturbances?

a. Compensated High Anion gap acidosis
b. Partly compensated metabolic alkalosis
c. Non anion gap Metabolic acidosis and respiratory acidosis
d. Metabolic acidosis and metabolic alkalosis

146. A normal anion gap metabolic acidosis occurs in

a. Diarrhoea
b. Diabetic ketoacidosis
c. Methyl alcohol poisoning
d. Acute renal failure

147. All of the following are chloride responsive causes of metabolic alkalosis except

a. Recurrent vomiting
b. NG aspiration
c. Excessive loop diuretic use
d. Barterr syndrome

148. Most common acid-base disturbance in critically ill patients is?

a. Acute respiratory acidosis
b. Acute respiratory alkalosis
c. Chronic respiratory acidosis
d. Chronic respiratory alkalosis

149. Which out of the following conditions will not cause respiratory alkalosis?

a. Fever
b. Anxiety
c. Laryngeal obstruction
d. Salicylate toxicity

150. A 2year old boy presents with fever for 3days which respond to administration of paracetamol. Three days later he developed acute renal failure; marked acidosis and encephalopathy. His urine showed plenty of oxalate crystals. The blood anion gap was increased. Which of the following is the most likely diagnosis

a. Paracetamol poisoning
b. Diethyl glycol poisoning
c. Severe malaria
d. Hanta virus infection

143. a	144. b	145. a	146. a	147. d	148. d	149. c	150. b

Respiratory System — Explanations

1. C Type I pneumocytes can divide to reconstitute type II pneumocytes after lung injury

- Alveoli contain Type I and type II pneumocytes.
- Type II cells produce surfactant. Type I are more vulnerable to injury. Type II divide and reconstitute Type I cells.

2. B. PAO2 at base is lower than at the apex

In lung ventilation and perfusion are maximum at base and minimum at apex. But ventilation perfusion ratio is highest at apex. Also PAO2 is highest at apex where as PCO2 is highest at base.

3 A. Chest wall and lungs recoil in opposite directions to each other.

The pressure in the space between the two layers of pleura is subatmospheric: -2.5 mms of Hg (w.r.t atmosphere) at the start ofinspiration, decreasing to -6 mms of Hg at the end of inspiration.

This is because the lungs and chest wall are elastic structures with a tendency to recoil in opposite directions- lungs tendto recoil towards the inside and the chest wall tends to recoil towards the inside.

The lungs are stretched when they expand during inspiration, and at the end of quiet expiration (functional residual capacity) theirtendency to recoil from the chest wall is just balanced by the tendency of the chest wall to recoil in the opposite direction (atFRC the lung recoil is equal to and is balanced by the chest wall recoil- FRC is also k/a 'relaxation volume of the lungs').

If the chest wall is opened, the lungs collapse; and if the lungs lose their elasticity, the chest expands and becomes barrel shaped.

4. A. Posterior segment of right upper lobe

In primary lung abscesses, the dependent segments (posterior upper lobes and superior lower lobes) are the most common locations, given the predisposition of aspirated materials to be deposited in these areas. Generally, the right lung is affected more commonly than the left because the right mainstem bronchus is less angulated

5. B. Tuberculosis.

World wide Tuberculosis is the most common cause of hemoptysis

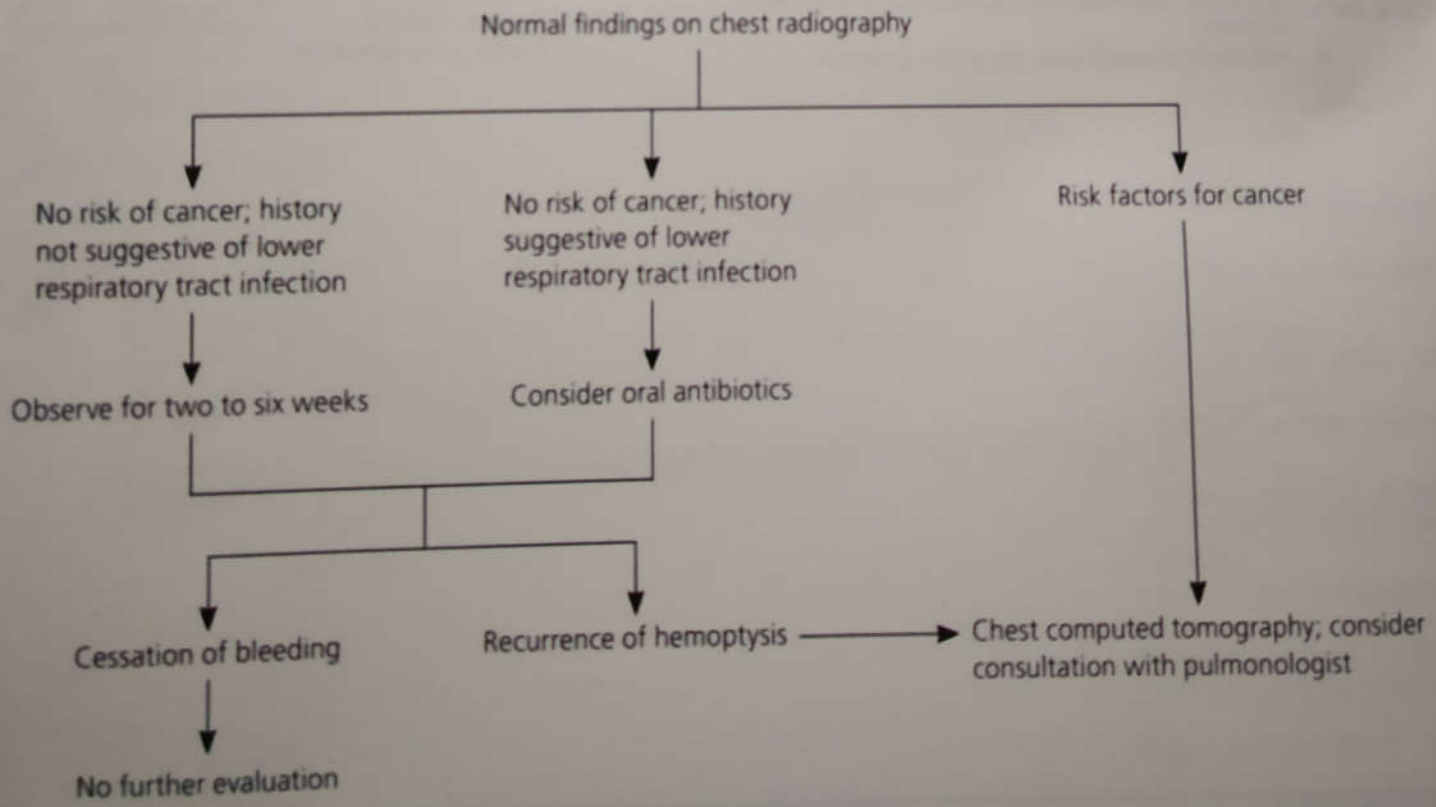
6. B. bronchial artery

A unique feature of the lung that predisposes to hemoptysis of varied severity is its dual blood supply – thepulmonary and bronchial circulations.

Most hemoptysis is due to vessels in the bronchial circulationand is, therefore, under systemic pressure, making it more challenging to arrest the bleeding.

Also most massive hemoptysis arises from the bronchialcirculation, bronchial artery embolization is the procedure of choice for control of massive hemoptysis

7. B Chest CT


Normal findings on chest radiography
No risk of cancer; history not suggestive of lower respiratory tract infection
No risk of cancer; history suggestive of lower respiratory tract infection
Risk factors for cancer
Observe for two to six weeks
Consider oral antibiotics
Cessation of bleeding
Recurrence of hemoptysis
Chest computed tomography; consider consultation with pulmonologist
No further evaluation

8. C. Alveolar haemorrhage

DLCO can be increased in Polycythemia, alveolar haemorrhage and asthma

9. A. The concentration used in DLCO is 0.3%.

10. D Pleural effusion

Clinical findings of contralateral tracheal shift with absent breath sounds and dull note is suggestive of pleural effusion

11. D. ↓ FEV1/FVC ratio

ILD is a restrictive lung disease with decreased FVC, Residual volume, Functional residual capacity

Total lung capacity and DLCO. FeV1/FVC ratio is either normal or increased.

12. C. Bronchial obstruction

Clinical findings of ipsilateral tracheal shift with absent movements and breath sounds is suggestive of collapse probably due to bronchial obstruction

13. d. ↓ FEV1/FVC ratio

Kyphoscoliosis is an extrinsic restrictive lung disease so FeV1/FVC can be normal or increased but not decreased. As it is an extrinsic disease RV may remain normal but TLC decreases eventually so RV/TLC ratio increases.

14. B. increased total lung capacity

H/O is suggestive of COPD in young non-smoker probably due to Alpha 1 Antitrypsin deficiency. In COPD FeV1/FVC ratio is decreased, RV, FRC and TLC increased. VC can be normal or decreased

15. A Body plethysmography.

Spirometry does not measure total lung capacity because it cannot account for residual volume.

The most frequently used and accurate measures of lung volumes are steady-state helium dilution lung volumes and body plethysmography.

Subsequently, body plethysmography is the preferred method for lung volume measurement in these disease states.

To perform body plethysmography, the patient sits in a sealed box and pants against a closed mouthpiece. Panting results in changes in the pressure of the box that, when compared with changes at the mouthpiece, can be used to calculate lung volumes.

This method measures total thoracic gas volume and is more accurate than helium dilution.

16. B. Asbestosis

Patient has history of asbestos exposure (roofer by occupation). Clinical examination is suggestive of ILD. Spirometry reveals a restrictive pattern with decreased FVC, RV, TLC and DLCO but preserved FeV1/FVC ratio. By this diagnosis of asbestosis can be made in the given patient.

17. A. Right hydropneumothorax

Unlike pleural effusions alone, whose meniscoid shape is governed by the elastic recoil of the lung, hydro-pneumothorax produces an air-fluid level in the hemithorax marked by a straight edge and a sharp, air-over-fluid interface when the exposure is made with a horizontal x-ray beam.

Surgery, trauma, a recent thoracentesis to remove pleural fluid, and bronchopleural fistulae are among the causes of a hydropneumothorax

18. C. Shunt

- The clinical and lab evidence is suggestive of ARDS. In this patient presenting with multilobarpneumonia, hypoxemia is present that does not correct with increasing the concentration of inspiredoxygen.
- The inability to overcome hypoxemia or the lack of a notable increase in partial pressure ofarterial oxygen (PaO2) or oxygen saturation (SaO2) with increasing fraction of inspired oxygenphysiologically defines a shunt.
- A shunt occurs when deoxygenated blood is transported to the left heart and systemic circulationwithout having the capability of becoming oxygenated.
  - Causes of shunt include alveolar collapse (atelectasis), intra-alveolar filling processes,intrapulmonary vascular malformations, or structural cardiac disease leading to right-to-left shunt. Inthis case,the patient has multilobar pneumonia leading to alveoli that are being perfused but unable toparticipate in gas exchange because they are filled with pus and infammatory exudates. Acuterespiratory distress syndrome is another common cause of shunt physiology.
- V/Q mismatch isthe most common cause of hypoxemia and results when there are some alveolar units with low ratios (low ventilation to perfusion) that fail to fully oxygenate perfused blood. When blood isreturned to the left heart, the poorly oxygenated blood admixes with blood from normal alveolarunits. The resultant hypoxemia is less severe than with shunt and can be corrected withincreasing the inspired oxygen concentration.
- Hypoventilation with or without other causes ofhypoxemia is not present in this case, as the PCO2 <40 mmHg indicates hyperventilation.

19. D. Ventilation-perfusion mismatch

20. C. reduced functional residual capacity

H/O and CT chest is suggestive of ILD. Spirometry will reveal a restrictive pattern with decreased FVC, RV, TLC and DLCO but preserved or increasedFeV1/FVC ratio.

21. A. Myasthenia gravis

The obstructive lung diseases are characterized by a reduction inthe forced expiratory volume in 1 second (FEV1)/forced vital capacity (FVC) ratio, typically-below 0.70. The typical lung diseases that manifest with airways obstruction include chronic obstructive lung disease (which includes emphysema and chronic bronchitis), asthma, bronchiectasis, and bronchiolitis. Myasthenia gravis is a extrinsic restrictive lung disease and typically manifests with a restrictiveventilator defect

22. D. Normal TLC, normal RV, normal FEV1/FVC ratio, decreased DLCO

Ventilatoryfunction can be easily measured with lung volume measurement and the FEV1/FVC ratio. A decreased FEV1/FVC ratio is characteristic of obstructive lung diseases. Alternatively, low lung volumes, specifically decreased total lung capacity (TLC), and occasionally decreased residualvolume (RV) are characteristic of restrictive lung diseases. In Pulmonary Hypertension spirometry parameters can be normal but DLCO is decreased.

23. B. Functional residual capacity

The functional residual capacity of the lung refers to the volumeof air that remains in the lung following a normal tidal respiration. This volume of air representsthe point at which the outward recoil of the chest wall is in equilibrium with the inward elasticrecoil of the lungs and maintained by intra pleural pressure.

24. D. Pulmonary alveolar proteinosis

Pulmonary alveolarproteinosis is a rare disorder that usually presents between ages 30 and 50 years. It is slightlymore common in men. Three distinct subtypes have been described: congenital, acquired, and secondary (most frequently caused by acute silicosis or hematologic malignancies). Interestingly,the pathogenesis of the disease has been associated with antibodies to granulocyte-macrophagecolony-stimulating factor (GM-CSF) in most cases of acquired disease in adults. The pathobiologyof the disease is failure of clearance of pulmonary surfactant.

Classically, the CT appearance is described as "crazy pavement". Bronchoalveolar lavage is diagnostic, with large amounts of milky white materialseen. Macrophages filled with periodic acid-Schif–positive material are also frequently seen.

25. A. Whole Lung lavage

Thetreatment of choice for PAP is whole-lung lavage through a double-lumen endotracheal tube.

Treatment of pulmonary alveolar proteinosis with GM-CSF remains experimental.

26. B. Type 2

Type I: Acute Hypoxemic Respiratory Failure

This type of respiratory failure occurs with alveolar flooding and subsequent intrapulmonary shunt physiology.

Type II Respiratory Failure: Hypercapnic Respiratory Failure

This type of respiratory failure is a consequence of alveolar hypoventilation and results from the inability to eliminate carbon dioxide effectively

Type III Respiratory Failure

This form of respiratory failure results from lung atelectasis. Because atelectasis occurs so commonly in the perioperative period, this form is also called perioperative respiratory failure

Type IV Respiratory Failure

This form results from hypoperfusion of respiratory muscles in patients in shock

27. D. Normal A-a gradient

Type 1 respiratory failure is characterised by hypoxemia, normal to decreased CO2 levels and ncreased alveolar arterial gradient seen usually in pneumonia, ARDS and ILD.

28. B. alveolar flooding

29. C. Hypoperfusion of respiratory muscles

30. D. COPD exacerbation

Contraindications for Noninvasive Ventilation

Cardiac or respiratory arrest

Severe encephalopathy

Severe gastrointestinal bleed

Hemodynamic instability

Unstable angina and myocardial infarction

Facial surgery or trauma

Upper airway obstruction

High-risk aspiration and/or inability to protect airways

Inability to clear secretions

31. D. NIV hashad limited success in patients with acute hypercapnic respiratory failure

NIV decreases the work of breathing and may aid weaning from mechanical ventilation.

Can reduce the need for intubation and hospital morbidity.

Failure of NIV is associated with a higher mortality in respiratory failure. The greatest benefit of NIV use is seen in patients with respiratory failure caused by acute COPD exacerbation.

NIV hashad limited success in patients with acute hypoxemic respiratory failure, for whom endotracheal intubation and conventional MV remain the ventilatory method of choice.

32. C. Measurement of pulmonary artery wedge pressure

ARDS is a clinical triad of hypoxemia, diffuse lung infiltrates, and reduced lung compliance notattributable to congestive cardiac failure. This noncardiogenic pulmonary edema is identical tocongestive cardiac pulmonary edema in its effect on the mechanical properties of the lung and ongas exchange. Just as in cardiac pulmonary edema, the increase in lung water associated with ARDSproduces interstitial edema and alveolar collapse,and so the affected lung becomes stiff and thealveolar-arterial oxygen tension difference widens.

- Unlike cardiac edema, however, the increase in lung water in ARDS occurs as a result of an increasein alveolar capillary permeability and is not due to an increase in hydrostatic forces.
- In clinical practice, determination of pulmonary artery wedge pressure is the most helpful discriminant between ARDS and cardiac failure

33. B. Hypercapnia

Acute respiratory distress syndrome (ARDS) is a clinical syndrome of severe dyspnea of rapid onset, hypoxemia, and diffuse pulmonary infiltrates leading to respiratory failure. Hypercapnia is not included in definition.

34. A. Diffuse alveolar damage

35. B. PaO2/ FiO2 ≤ 100 mmHg

Severity: Oxygenation[a]	Onset	Chest Radiograph	Absence of Left Atrial Hypertension
Mild: 200 mmHg < PaO_2/FlO_2 s 300 mmHg Moderate: 100 mmHg < PaO_2/FlO_2 < 200 mmHg Severe: PaO_2/FlO_2 < 100 mmHg	Acute: Within 1 week of a clinical insult or new or worsening respiratory symptoms.	Bilateral opacities consistent with pulmonary edema not fully explained by effusions, lobar/lung collapse, or nodules	Hydrostatic edema is not the primary cause of respiratory failure. If no ARDS risk factor is present, then some objective evaluation is required (e.g., echocardiography) to rule out hydrostatic edema

[a]As assessed on at least 5 cm H_20 of positive end expiratory pressure (PEEP).

Abbreviations: ARDS, acute respiratory distress syndrome; F1O2, inspired O_2 percentage; Pa02, arterial partial pressure of O_2; PCWP, pulmonary capillary wedge pressure.

The annual incidence of ARDS is estimated to be as high as 60 cases/100.000 population. Approximately 10% of all intensive care unit (ICU) admissions involve patients with ARDS.

36. A. 6ml/kg

A large-scale, randomized controlled trial sponsored by the National Institutes of Health and conducted by the ARDS Network compared low VT ventilation (6 mL/kg of predicted body weight) to conventional VT ventilation (12 mL/kg predicted body weight).

The mortalityrate was significantly lower in the low VT patients (31%) than in the conventional VT patients (40%).

This improvement in survival represents a substantial ARDS-mortality benefit.

37. B. Inspiration time > expiration time

INVERSE-RATIO VENTILATION (IRV)

This mode incorporates the use of a prolonged inspiratory time with theappropriate shortening of the expiratory time.IRV has been used in patients with severe hypoxemicrespiratory failure. This approach increases mean distending pressures without increasing peakairway pressures. It is thought to work in conjunction with PEEP to open collapsed alveoli and improveoxygenation. However, no clinical-trial data have shown that IRV improves outcomes.

38. D. Progesteronre therapy

- The two most common autosomal dominant genetic mutations are factor V Leiden, which causes resistance to the endogenous anticoagulant, activated protein C (which inactivates clotting factors V and VIII), and the prothrombin gene mutation, which increases the plasma prothrombin concentration.
- Antithrombin, protein C, and protein S are naturally occurring coagulationinhibitors. Deficiencies of these inhibitors are associated with VTE but are rare.
- Antiphospholipidantibody syndrome is the most common acquired cause of thrombophilia and is associated with venous or arterial thrombosis.
- Other common predisposing factors include cancer, obesity, cigarette smoking, systemic arterial hypertension, chronic obstructive pulmonary disease, chronic kidneydisease, blood transfusion, long-haul air travel, air pollution, estrogen-containing contraceptives,pregnancy, postmenopausal hormone replacement, surgery, and trauma.
- Inflammation predisposes tothrombosis, and conditions such as psoriasis and inflammatory bowel disease have becomerecognized risk factors of VTE.

39. C. sinus tachycardia

The most frequently cited abnormalityis sinus tachycardia and most specific is the S1Q3T3 sign: an S wave

in lead I, a Q wave in lead III, and an inverted T wave in lead III

40. C. Westermarks sign is dilated pulmonary artery

A normal or nearly normal chest x-ray often occurs in PE. Well-established abnormalities include focal oligemia (Westermark's sign), a peripheral wedged-shaped density usually located at the pleural base (Hampton's hump), and an enlarged right descending pulmonary artery (Palla's sign).

41. C. Chest CT with IV CONTRAST

CT of the chest with intravenous contrast is the principal imaging test for the diagnosis of PE

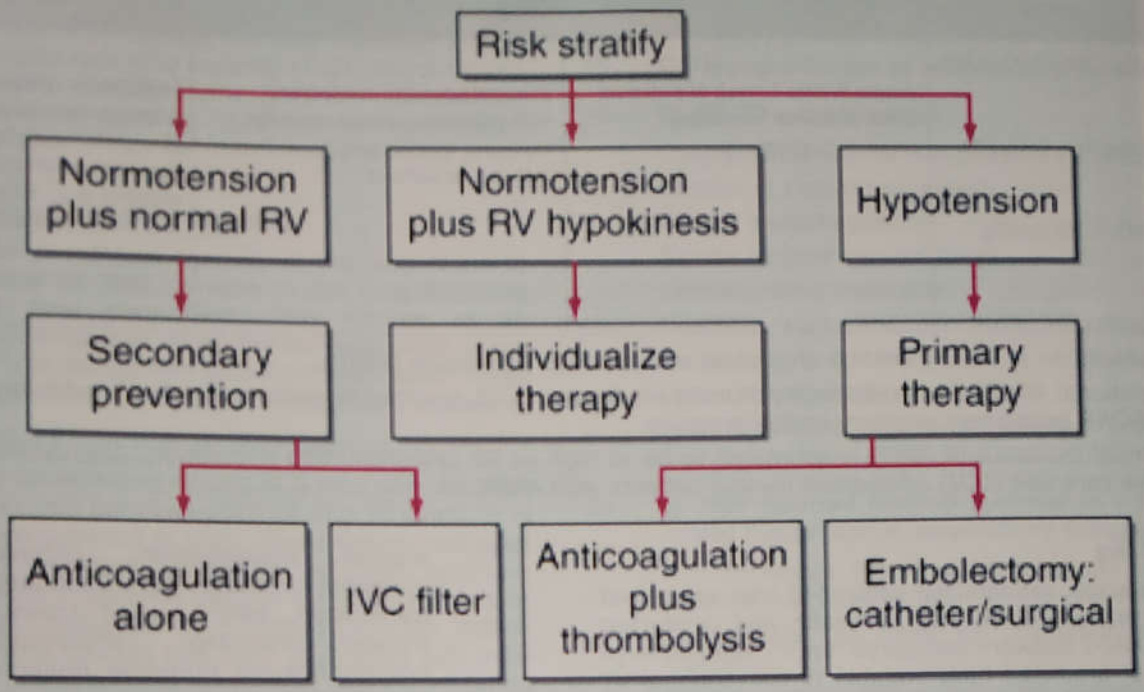
42. B. Massive PE accounts for 50–60% of cases

Massive PE accounts onlyfor 5–10% of cases, and is characterized by extensive thrombosis affecting at least half of the pulmonary vasculature. Dyspnea, syncope, hypotension, and cyanosis are hallmarks of massive PE.

Submassive PE accounts for 20–25% of patients, and is characterized byRV dysfunction despite normal systemic arterial pressure.

Low-risk PE constitutesabout 65–75% of cases. These patients have an excellent prognosis.

ALGORITHM FOR PE MANAGEMENT



44. B. Acute massive pulmonary embolism

Pressures: RA= 12mm.Hg. RV = 50/12mm. Hg. PA=50/1 5mm. Hg. PA wedge pressure = 8mm. Hg. Aorta = 80/60, Cardiac Index = 1.4, PVR = 500 The above data shows elevated Right heart pressure with near normal left side pressure [PAWP] with hypotension is suggestive of Acute right ventricular failure (Acute corpulmonale) due to massive Pulmonary embolus

45. D. Right heart catheterisation

An echocardiogram is a screening test, whereas invasivehemodynamic monitoring is the gold standard for diagnosis and assessment of disease severity. With a normalechocardiogram, there may still be some concern for PH; this is particularly true if there is unexplained dyspnea orhypoxemia. In this setting, it is reasonable to proceed to right heart catheterization (RHC) for definitive diagnosis.

46. D. Scleroderma

Among CTDs PAH is commonest in Scleroderma

47. B. mPAP>25MMHG, PCWP < 15 mmhg.

The definition of precapillary PH or PAH requires (1) anincreased mean pulmonary artery pressure (mPAP ≥25 mmHg); (2) a pulmonary capillary wedgepressure (PCWP), left atrial pressure, ≤15 mmHg; - Postcapillary PH is differentiated from precapillary PH by a PCWP of ≥15 mmHg

48. B. WHO Group II

49. A. S. pneumoniae

- Most cases of CAP, however, are caused by relatively few pathogens. Although Streptococcus pneumoniae is most common, other organisms must also be considered in light of the patient's risk factors and severity of illness.
- Separation of potential agents into "typical" bacterial pathogens or "atypical"organisms may be helpful. The former category includes S. pneumoniae, Haemophilus influenzae, and (inselected patients) S. aureus and gram-negative bacilli such as Klebsiella pneumoniae and Pseudomonasaeruginosa.
- The "atypical" organisms include Mycoplasma pneumoniae, Chlamydia pneumoniae, and Legionella species as well as respiratory viruses such as influenza viruses, adenoviruses, human metapneumovirus, and respiratory syncytial viruses.

50. D. Mycoplasma

51. C. Good response with Beta lactam treatment

The frequency and importance ofatypical pathogens have significant implications for therapy. They are intrinsically resistant to all β-lactamagents and must be treated with a macrolide, a fluoroquinolone, or a tetracycline.

52. A. H.influenza

Nontypable H. influenzae is the most common bacterial cause of exacerbations of COPD; these exacerbations are characterized by increased cough, sputum production, and shortness of breath. Fever is low-grade, and no infiltrates are evident on chest x-ray.

Nontypable strains also cause community-acquired bacterial pneumonia in adults, especially among patients with COPD or AIDS. The clinical features of H. influenzae pneumonia are similar to those of other types of bacterial pneumonia, including pneumococcal pneumonia

53. A. Legionella

- In a review of 13 studies of community-acquired pneumonia, clinical manifestations that occurred significantly more oxen in Legionnaires' disease included diarrhea, neurologic findings (including confusion), and a temperature of >39°C (>102.2°F).
- Hyponatremia, elevated values in liver function tests, and hematuria also occurred more frequently in Legionnaires' disease. Other laboratory abnormalities includecreatine phosphokinase elevation, hypophosphatemia, serum creatinine elevation, and proteinuria.

54. D. A normal chest radiograph rules out the diagnosis.

- CD4 count of <200 cells per µL in patients with HIV infection carries an increased risk of P. jirovecipneumonia.
- Increased serum lactate dehy-drogenase (LDH) is present in >90% of patients; a normal LDH has ahigh negative predictive value.
- A widened alveoloarterial oxygen ten-sion difference with hypoxaemiais frequently seen in patients with P. jirovecipneumonia. The resulting hyperventilation induceshypocapnia with (compensated) respiratory alkalosis.
- About 25% of patients with P. jirovecipneumonia present with a normal chest radiography.

55. C. Streptococcus pneumoniae

The most common organisms which cause lobar pneumonia are Streptococcus pneumoniae, also called pneumococcus. MC typical pneumonia: strept. pneumonia

- MC of atypical pneumonia: Mycoplasma
- MC noscomialpneumonia : gram negative baciĺli
- MC early VAP : Streptococcus
- MC late VAP : pseudomonas
- MC VAP : pseudomonas
- MC pneumonia in cystic fibrosis : pseudomonas
- MC pneumonia resulting in ICU admission : streptococcus
- MC opportunistic infection in HIV : tuberculosis

56. A. OP treatment with Clarithromycin 500mg BID for one week

The CURB-65 criteria include five variables: confusion (C); urea >7 mmol/L (U); respiratory rate ≥30/min (R); blood pressure, systolic ≤90 mmHg or diastolic ≤60 mmHg (B); and age ≥65 years. Patients with a score of 0, can be treated outside the hospital. With a score of 2, should be admitted to the hospital. Patients with scores of ≥3, may require ICU admission.

In the above questions the patients score is 0 so out patient treatment with antibiotic is usually sufficient.

57. B. Predominance of alveolar exudates

Atypical pneumonia

- Acute viral pneumonias or interstitial pneumonias are sometimes called atypical pneumonias because the typical features of air space pneumonia are not present in them.

The term 'atypical" denotes

- Less amount of sputum.
- Only moderate elevation of white cell count.
- No physical findings of consolidation
- Lack of alveolar exudates.
- Acute interstitial pneumonias result from infection by agents that are predominantly obligate intracellular pathogens.
- Infections with these organisms evokes an acute inflammation that is usually restricted to the interstitium withoutinvolvement of the alveolar spaces.

58. C. Klebsiella pneumoniae

Klebsiella pneumonia showing classical RUL consolidation with bulging fissure sign

59. A. Beta lactams.

Mycoplasma has no cell wall and beta lactams cannot exert their action

60. D. Fluoroquinolones

Treatment of Pneumocystosis

Drugts (s)	Dose, Route
First-Choice Agent	
TMP-SMX	TMP (5 mg/kg) plus. SMX (25 mg/kg) q6-8h PO or IV (2 doublestrength tablets tid or qid)
Alternative Agents	
TMP	5 mg/kg q6-8h PO
Plus	
Dapsone	100 mg qd PO
Atovaquone	750 mg bid PO
Clindamycin	300 – 450 mg q6h PO or
Plus	600mg q6 – 8h IV
Primaquine	15 – 30 mg qd PO
Pentamidine	3 – 4 mg/kg qd IV

61. D. Anaerobes

- Of the organisms listed, only anaerobic infection is likely to cause a necrotizing process.
- Type III pneumococci have been reported to cause cavitary disease, but this is unusual.
- The location of the infiltrate suggests aspiration, also making anaerobic infection most likely.
- The superior segment of the right lower lobe is the one most likely to develop an aspiration pneumonia.

62. B. Strept. pneumonia

63. B. Left ventricular failure

Common causes of transudative effusions are left ventricular heart failure(Most common cause overall) cirrhosis, and nephrotic syndrome. Common causes of exudative effusions are bacterial pneumonia, malignancy, viral infection, and pulmonary embolism

64. D. All of the above

Transudative and exudative pleural effusions are distinguished by measuring the lactate dehydrogenase (LDH) and protein levels in the pleural fluid. Exudative pleural effusions meet at least one of the following criteria, whereas transudative pleural effusions meet none:

1. Pleural fluid protein/serum protein >0.5
2. Pleural fluid LDH/serum LDH >0.6
3. Pleural fluid LDH more than two-thirds the normal upper limit for serum

65. C. Effusion is usually right sided and exudative

Pleural effusions occur in ~5% of patients with cirrhosis and ascites. The predominant mechanism is the direct movement of peritoneal fluid through small openings in the diaphragm into the pleural space. The effusion is usually right-sided, transudative and frequently is large enough to produce severe dyspnea.

66. B. Pleural fluid pH < 7.40

Factors indicating the likely need for a procedure more invasive than a thoracentesis (in increasing order of importance) include the following:

1. Loculated pleural fluid
2. Pleural fluid pH <7.20
3. Pleural fluid glucose <3.3 mmol/L (<60 mg/dL)
4. Positive Gram stain or culture of the pleural fluid
5. Presence of gross pus in the pleural space

67. C. Thepleural fluid is almost always a transudate in Pulmonary embolism

- The diagnosis most commonly overlooked in the differential diagnosis of a patient with anundiagnosed pleural effusion is pulmonary embolism. Dyspnea is the most common symptom. Thepleural fluid is almost always an exudate.

The diagnosis is established by spiral CT scan or pulmonaryarteriography Treatment of a patient with a pleural effusion secondary to pulmonaryembolism is the same as it is for any patient with pulmonary emboli.

Thepleural fluid is almost always a transudate in Pulmonary embolism

68. C. Hypersensitivity reaction to tuberculous protein in pleural space

Tuberculous pleural effusions usually are associated with primary TB and are thought to be dueprimarily to a hypersensitivity reaction to tuberculous protein in the pleural space.

Patients with tuberculous pleuritis present with fever, weight loss, dyspnea, and/or pleuritic chest pain. The pleural fluid is an exudate with predominantly small lymphocytes.

The diagnosis is established bydemonstrating high levels of TB markers in the pleural fluid (adenosine deaminase >40 IU/L orinterferon γ >140 pg/mL). Alternatively, the diagnosis can be established by culture of the pleural fluid,needle biopsy of the pleura, or thoracoscopy.

69. D. Predominantly mesothelial cells

The pleural fluid in TB effusion is an exudate with predominantly small lymphocytes with paucity of mesothelial cells.

70. B. Trauma

A chylothorax occurs when the thoracic duct is disrupted and chyle accumulates in the pleural space.

The most common cause of chylothorax is trauma (most frequently thoracic surgery), but it also mayresult from tumors in the mediastinum.

Patients with chylothorax present with dyspnea, and a largepleural effusion is present on the chest radiograph. Thoracentesis reveals milky fluid, and biochemicalanalysis reveals a triglyceride level that exceeds 1.2 mmol/L (110 mg/dL).

Patients with chylothoraxand no obvious trauma should have a lymphangiogram and a mediastinal CT scan to assess themediastinum for lymph nodes.

71. D. hyperresonance to percussion, and shift of the mediastinum to the ipsilateral side

- Atensionpneumothoraxisapneumothoraxinwhichthe pressure in the pleural space is positive throughout the respiratory cycle.
- The positive pleuralpressure is life-threatening both because ventilation is severely compromised and because the positive pressure is transmitted to the mediastinum, resulting in decreased venous return to the heart and reduced cardiac output.
- Difficulty in ventilation during resuscitation or high peak inspiratory pressures during mechanical ventilation strongly suggest the diagnosis.
- The diagnosis is made by physical examination showing anenlarged hemithorax with no breath sounds, hyperresonance to percussion, and shift of themediastinum to the contralateral side. Tension pneumothorax must be treated as a medicalemergency.
- If the tension in the pleural space is not relieved, the patient is likely to die frominadequate cardiac output or marked hypoxemia. A large-bore needle should be inserted into thepleural space.

72. D. Insertion of a chest tube

The chest radiograph shows a left-sided pneumothorax with complete collapse of the lung and a shift of the mediastinal structures to the right. Based on the history and the pulmonary function tests, the patien suffers from COPD. Therefore, he has a secondar spontaneous pneumothorax.

The management of a pneumothorax is guided b the clinical presentation, i.e. the respiratory and/c cardiovascular compromise and eventual pre-existin lung disease. In the described case of a symptomati secondary spontaneous pneumothorax with comple collapse of the left lung, chest tube drainage recommended.

If the patient was asymptomatic and the pneumothorax was small (defined by a visible rim <2 cm between the lung and the chest wall at the level of the hilum in a conventional chest radiograph), a simple aspiration would be an option.

73. B. bronchi

Asthma is a syndrome characterized by airflow obstruction that varies markedly, both spontaneously and with treatment.

Asthmatics harbor a special type of inflammation in the airways that makes them more responsive than nonasthmatics to a wide range of triggers, leading to excessive narrowing with consequent reduced airflow and symptomatic wheezing and dyspnea.

There is inflammation in the respiratory mucosa from the trachea to terminal bronchioles, but with a predominance in the bronchi (cartilaginous airways).

74. A. Dermatophagoides

Inhaled allergens activate mast cells with bound IgE directly leading to the immediate release of bronchoconstrictor mediators, resulting in the early response that is reversed by bronchodilators.

Often, an experimental allergen challenge is followed by a late response when there is airway edema and an acute inflammatory response with increased eosinophils and neutrophils that are not very reversible with bronchodilators. The most common allergens to trigger asthma are Dermatophagoides species.

75. C. Have mild asthma

Intrinsic Asthma

A minority of asthmatic patients (~10%) have negative skin tests to common inhalant allergens and normal serum concentrations of IgE.

These patients, with non-atopic or intrinsic asthma, usually show later onset of disease (adult-onset asthma), commonly have concomitant nasal polyps, and may be aspirin-sensitive. They usually have more severe, persistent asthma.

Little is understood about mechanism, but the immunopathology in bronchial biopsies and sputum appears to be identical to that found in atopic asthma.

76. B.Pollen grains

Pollens usually causeallergic rhinitis rather than asthma, but in thunderstorms the pollen grains are disrupted and the particlesthat may be released can trigger severe asthma exacerbations (thunderstorm asthma).

77. B. rhino virus

Upper respiratory tract virus infections such as rhinovirus, respiratory syncytial virus, and coronavirus arethe most common triggers of acute severe exacerbations and may invade epithelial cells of the lower aswell as the upper airways. The mechanism whereby these viruses cause exacerbations is poorlyunderstood, but there is an increase in airway inflammation with increased numbers of eosinophils andneutrophils.

78. D. More worse in hot and humid climate than cold and dry climate

In exercise-induced asthma, hyperventilation results in water loss from the pericellular lining fluid of the respiratory mucosa, that results in increased osmolality in airway lining fluid and triggers mast cell mediator release, resulting in bronchoconstriction.

Exercise-induced asthma (EIA) typically begins after exercise has ended, and recovers spontaneously within about 30 min. EIA is worse in cold, dry climates than in hot, humid conditions. It is, therefore, more common in sports such as cross-country running in cold weather, overland skiing, and ice hockey than in swimming. It may be prevented by prior administration of β2-agonists and antileukotrienes, but is best prevented by regular treatment with ICS, which reduce the population of surface mast cells required for this response.

79. C. Eosinophilic inflammation

Nitric oxide (NO) is produced by NO synthases in several cells in the airway, particularly airway epithelial cells and macrophages. The level of NO in the expired air of patients with asthma is higher than normal and is related to the eosinophilic inflammation. Increased NO may contribute to the bronchial vasodilation observed in asthma. Fractional exhaled NO (FENO) is increasingly used in the diagnosis and monitoring of asthmatic inflammation, although it is not yet used routinely in clinical practice.

80. D. > 12 % or 200 ml

In asthma, simple spirometry confirms airflow limitation with a reduced FEV1, FEV1/FVC ratio, and PEF. Reversibility is demonstrated by a >12% and 200-mL increase in FEV1 15 min after an inhaled shortacting β2-agonist (SABA; such as inhaled albuterol 400 μg) or in some patients by a 2–4 week trial of oralcorticosteroids (OCS) (prednisone or prednisolone 30–40 mg daily).

81. C Diurnal variation PEFR > 20%

- In asthma Reversibility is demonstrated by a >12% and 200-mL increase in FEV1 15 min after an inhaled short-acting β2-agonist.
- The increased AHR is normally measured by methacholine or histamine challenge with calculation of the provocative concentration that reduces FEV1 by 20%. Asthma is an obstructive disease and characterised by decreased FeV1/ FVC. Also there is diurnal PEFR variability >20%

82. C. I:E ratio 1:3

Beneficial in asthma during mechanical ventilation is high inspiratory flow and increasing expiratory time (1:3)

83. A. LABA

Bronchodilators act primarily on airway smooth muscle to reverse the bronchoconstriction of asthma.

This gives rapid relief of symptoms but has little or no effect on the underlying inflammatory process.

Thus, bronchodilators are not sufficient to control asthma in patients with persistent symptoms

84. C. non compliance with medication

The most common reason for poor control of asthma is poor adherence with medication, particularly ICS.

Compliance with ICS may be low because patients do not feel any immediate clinical benefit or may be concerned about side effects.

85. B. 40 mg OD for 2 weeks

A few patients with asthma show a poor response to corticosteroid therapy and may have various molecular abnormalities that impair the anti-inflammatory action of corticosteroids. Complete resistance to corticosteroids is extremely uncommon and affects <1 in 1000 patients. It is defined by a failure to respond to a high dose of oral prednisone/prednisolone (40 mg once daily over 2 weeks), ideally with a 2- week run-in with matched placebo.

86. D. Sub cutaneous epinephrine

Some show apersistent pattern of variability and may require OCS or, at times, continuous infusion of β2-agonists (typeI brittle asthma), whereas others have generally normal or near-normal lung function but precipitous, unpredictable falls in lung function that may result in death (type 2 brittle asthma). These latter patients are difficult to manage as they do not respond well to corticosteroids, and the worsening of asthma does not reverse well with inhaled bronchodilators. The most effective therapy is subcutaneous epinephrine, which suggests that the worsening is likely to be a localized airway anaphylactic reaction with edema

87. D. Respiratory bronchiole

- In centriacinar emphysema there is predominant involvement of respiratory bronchioles

88. B. Fev1/Fvc< 0.7

89. C. Pan acinar emphysema commonly involves upper lobes

Emphysema is classified into distinct pathologic types, which include centrilobular, panlobular, and paraseptal.

- Centrilobular emphysema, the type most frequently associated with cigarette smoking, is characterized by enlarged air spaces found(initially) in association with respiratory bronchioles.
- Centrilobular emphysema is usually most prominent in the upper lobes and superior segments of lower lobes and is often quite focal. Panlobular emphysema refers to abnormally large air spaces evenly distributed within and across acinar units.

Panlobular emphysema is commonly observed in patients with α1AT deficiency, which has a predilection for the lower lobes. Paraseptal emphysema occurs in 10–15% of cases and is distributed along the pleural marginswith relative sparing of the lung core or central regions. It is commonly associated with significant airway inflammation and withcentrilobular emphysema.

90. C. Acute bronchodilatory effect

91. B. Indicated if Resting PaO 2 of 56-60 mmHg with evidence of end-organ dysfunction such as pulmonary hypertension

Indications of 02 therapy in COPD : Pts with a resting PaO2 ≤55 mmHg, Pts with PaO2 56–59 mmHg or SaO2 <90% if associated with signs and symptoms of pulmonaryhypertension orcor pulmonale.

92. A. Breathing index

It has been shown that a multifactorial index (BODE) incorporating airflowobstruction, exercise performance, dyspnea, and body mass index is a better predictor of mortality rate than pulmonary functionalone.

93. D. FEV1 < 30 % Predicted

Gold Spirometric grading criteria for copd severity

Gold Stage	Severity	Spirometry
I	Mild	$FEV_1/FVC < 0.7$ and FEV_1 >80% predicted
II	Moderate	$FEV_1/FVC < 0.7$ and FEV_1 >50% but < 80% predicted
III	Severe	$FEV_1/FVC < 0.7$ and FEV_1 >30% but < 50% predicted
IV	Very severe	$FEV_1/FVC < 0.7$ and FEV_1 <30% predicted

94. C. CT chest

Radiographic studies may assist in the classification of the type of COPD. Obvious bullae, paucity of parenchymal markings, orhyperlucency on chest x-ray suggests the presence of emphysema. Increased lung volumes and flattening of the diaphragm suggest hyperinflation but do not provide information about chronicity of the changes. Chest computed tomography (CT) scan is the current definitive test for establishing the presence or absence of emphysema.

95. B. Clubbing

Signs of overt right heart failure, termed cor pulmonale, are relatively infrequent since the advent of supplemental oxygen therapy. Clubbing of the digits is not a sign of COPD, and its presence should alert the clinician to initiate an investigation for causes of clubbing. In this population, the development of lung cancer is the most likely explanation for newly developed clubbing.

96. B. Oxygen

Only three interventions – smoking cessation, oxygen therapy in chronically hypoxemic patients, and lung volume reduction surgery (LVRS) in selected patients with emphysema—have been demonstrated to improve survival of patients with COPD. There is suggestive, but not definitive, evidence that the use of inhaled corticosteroids (ICS) and muscarinic antagonists may reduce the mortality rate. Supplemental O2 is the only pharmacologic therapy demonstrated to unequivocally decrease mortality rates in patients with COPD.

97. B. cystic fibrosis

Bronchiectasis more pronounced involvement of the upper lung fields is most common in cystic fibrosis (CF) and is also observed in postradiation fibrosis,

corresponding to the lung region encompassed by the radiation port.

Bronchiectasis with predominant involvement of the lower lung fields usually has its source inchronic recurrent aspiration (e.g., due to esophageal motility disorders like those in scleroderma), endstage fibrotic lung disease (e.g., traction bronchiectasis from idiopathic pulmonary fibrosis), orrecurrent immunodeficiency-associated infections (e.g., hypogammaglobulinemia).

Bronchiectasisresulting from infection by nontuberculous mycobacteria (NTM), most commonly the Mycobacterium avium-intracellularecomplex (MAC), often preferentially affects the midlung fields.

Congenital causesof bronchiectasis with predominant midlung field involvement include the dyskinetic/immotile cilia syndrome. Finally, predominant involvement of the central airways is reported in association withallergic bronchopulmonary aspergillosis (ABPA), in which an immune-mediated reaction to Aspergillusdamages the bronchial wall. Congenital causes of central airway–predominant bronchiectasisresulting from cartilage deficiency include tracheobronchomegaly (Mounier-Kuhn syndrome) andWilliams-Campbell syndrome.

98. C. chronic reccurrent aspiration

99. D. Pseudo aeruginosa

Pseudo aeruginosa has propensity for colonising damaged airways & evading host defence mechanism

100. D. Mycobacterium tuberculosis infec-tion

- Bronchiectasis occurs when there is irreversible dilation of the distal airways and can occur in a focal or diffuse fashion.
- The most common cause of diffuse bronchiectasis worldwide is prior granulomatous infection due to Mycobacterium tuberculosis.
- Other potential etiologies of diffuse bronchiectasis include cystic fibrosis, postradiation pneumonitis, immunoglobulin deficiency, end-stage fibrotic lung disease, and recurrent aspiration. However, despite extensive workup, as many as 25–50% of cases remain idiopathic.

101. C. Steatorrhea

Althoughthe majority of patients with cystic fibrosis are diagnosed in childhood, a significant number of patients are not identified until their late teens, twenties, or even thirties. Accuratediagnosis requires that the sweat chloride test be given to all patients with clinical featuresof cystic fibrosis.Airway obstruction resulting from bronchiectasis is associated with sinusitis and infertility in males with both cystic fibrosis and the immotile cilia syndrome,but only males with immotile cilia have Kartagener's syndrome (bronchiectasis, sinusitis & dextrocardia). Patients with cystic fibrosis may have any of several gastrointestinalmanifestations including obstruction, intussusception, fecal impaction, volvulus, portal hypertension, and steatorrhea. Steatorrhea is a manifestation of pancreatic insufficiency.

Nearly all patients with cystic fibrosis display clubbing.Men typically exhibit complete involution ofthe vas deferens and infertility (despite functioning spermatogenesis), and ~99% of males with CF areinfertile.

Abnormalities of female reproductive tract secretions are likely contributors to an increased incidence of infertility among women with the disease.

102. D. All

After resolution of an acute infection in patients with recurrences (e.g., ≥3 episodes per year), the use of suppressive antibiotics to minimize the microbial load and reduce the frequency of exacerbations has been proposed. Although there is less consensus about this approach in non-CF-associated bronchiectasis than in CF-related bronchiectasis, small studies have supported benefits of selected therapies.

Possible suppressive treatments include (1) administration of an oral antibiotic (e.g., ciprofloxacin) daily for 1–2 weeks per month;

(2) administration of a macrolide antibiotic (see below) daily or three times per week (with mechanisms of possible benefit related to non-antimicrobial properties, such as anti-inflammatory effects and reduction of gram-negative bacillary biofilms);

(3) inhalation of aerosolized antibiotics (e.g., tobramycin inhalation solution) for select patients on a rotating schedule (e.g., 30 days on, 30 days off), with the goal of decreasing the microbial load without eliciting the side effects of systemic drug administration.

103. D. Bronchiectasis

Three layered sputum – outermost: serous, middle: mucus and innermost: purulent. It is seen in bronchiectasis.

104. B. Distal bronchiectasis

ABPA represents a hypersensitivity reaction to A. fumigatus; rare cases are due to other aspergilli and other fungi.

Episodes of bronchial obstruction with mucous plugs leading to coughing fits, "pneumonia," consolidation and breathlessness are typical.

The cardinal diagnostic tests include

an elevated serum level of total IgE (usually >1000 IU/mL),

a positive skin-prick test in response to A. fumigatus extract, or

detection ofAspergillus-specific IgE and IgG antibodies.

The presence of hyper attenuated mucus in airways is highly specific.

Central or Proximal bronchiectasis (not distal bronchiectasis) characteristic, and some patients develop chronic cavitary pulmonary aspergillosis.

105. B. IT is a hypersensitivity pneum-onitis due to mycobacterium avium complex

106. A. Thermophilus actinomycetes

- Farmer's lung is a hypersensitivity pneumonitis induced by the inhalation of biologic dusts coming from hay dust or mold spores or other agricultural products.

- It results in a type III hypersensitivity inflammatory response and can progress to become a chronic condition which is considered potentially dangerous.
- While inhaled allergens often provoke the creation of IgE antibodies that circulate in the bloodstream, these types of immune response are most often initiated by exposure to thermophilic actinomycetes (most commonly Saccharopolysporarectivirgula), which generates IgG-type antibodies.

107. D. All

Aspergilloma (fungal ball) is a late manifestation of CPA, but some patients are asymptomatic. The inside of a pulmonary cavity allows growth that peels off, forming the layers of the fungal ball. Signs and symptoms associated with single (simple) aspergillomas are minor, including cough (sometimes productive), hemoptysis, wheezing, and mild fatigue

108. D. Poor clinical response to corticosteroids

Diagnostic Criteria of Acute Eosinophilic Pneumonia Acute febrile illness with respiratory manifestations of <1 month in duration Hypoxemic respiratory failure Diffuse pulmonary infiltrates on chest x-ray Bronchoalveolar lavage eosinophilia >25% Absence of parasitic, fungal, or other infection Absence of drugs known to cause pulmonary eosinophilia Quick clinical response to corticosteroids Failure to relapse after discontinuation of corticosteroids

109. D. Lung biopsy is often required to establish adiagnosis

- Chronic eosinophilic pneumonia is a more indolent syndrome that is characterized by pulmonary infiltrates and eosinophilia in both the tissue and blood.
- Most patients are female nonsmokers with a mean age of 45, and patients do not usually develop the acute respiratory failure and significant hypoxemia appreciated in acute eosinophilic pneumonia.
- Although the "photographic negative pulmonary edema" appearance on chest x-ray and chest CT is pathognomonic of chronic eosinophilic pneumonia, <25% of patients present with this finding. BAL eosinophilia is also an important distinguishing feature with mean BALeosinophil counts of ~60%.
- Both peripheral and BAL eosinophilia are very responsive to treatment with corticosteroids.
- Lung biopsy is also often not required to establish a diagnosis, but may show accumulation of eosinophils and histiocytes in the lung parenchyma and interstitium, as well as cryptogenic organizing pneumonia, but with minimal fibrosis.

110. D. Exposure to a known offending antigen

Although not meant as a set of validated diagnostic criteria, a clinical prediction rule for predicting thepresence of HP has been published by the HP Study Group. They identified six statistically significantpredictors for HP, the strongest of which was exposure to an antigen known to cause HP. Otherpredictive criteria were the presence of serum precipitins, recurrent symptoms, symptoms occurring4–8 h after antigen exposure, crackles on inspiration, and weight loss.

111. B. Pleural effusions, often initially benign

- Inhalation of asbestos fibers for 10 years or more may lead to interstitial fibrosis that typically begins in the lower lobes and later spreads to the middle and upper lung fields.
- This fibrosis is associated with a restrictive pattern on pulmonary function testing. The chest x-rayshows linear densities, thickening or calcification of the pleura (pleural plaques), and, in severecases, honeycombing.
- Exposure to asbestos also may cause exudative pleural effusions. These effusions are benign, butaffected persons may later sustain malignant mesotheliomas of the pleura or peritoneum.
- Unlike pulmonary fibrosis, pleural effusions and mesotheliomas may develop after brief exposuresto asbestos, often exposures of 1 to 2 years.
- Mesotheliomas are not associated with cigarette smoking, but the combination of exposure toasbestos and cigarette smoking has a multiplicative effect on the risk of development of lung cancer.
- Exposure to asbestos increases the risk for both adenocarcinoma and squamous cell (but not smallcell) carcinoma of the lung.

112. D. Calcification of hilar nodes may occurs in all cases andproduces a characteristic "eggshell" pattern.

The clinical and pathologic features of acute silicosis are similar to those of pulmonary alveolar proteinosis

Patients with silicosis are at greater risk ofacquiring lung infections that involve these cells as a primary defense (Mycobacterium tuberculosis,atypical mycobacteria and fungi)

Silica has immunoadjuvantproperties and another potential clinical complication of silicosis is autoimmune connective tissuedisorders such as rheumatoid arthritis and scleroderma

Calcification of hilar nodes may occur in as many as 20% of cases andproduces a characteristic "eggshell" pattern

113. B. Caplan's syndrome

Caplan's syndrome is a rare condition characterized by the presence of necrobiotic nodules in the periphery of the lung in coal workers with rheumatoid arthritis (Coal worker's pneumoconiosis + Rheumatoid arthritis)

114. C Patients with cystic fibrosis are more often affected than healthy persons.

The patient has allergic bronchopulmonary aspergillosis (ABPA), a hypersensitivity reaction to Aspergillus spp. (generally A. fumigatus) occurring almost exclusively in patients with asthma or cystic fibrosis.

- The immune response to Aspergillus antigens causes airway obstruction and, if untreated to bronchiectasis & fibrosis.
- Diagnosis can be suspected based on history

and thoracic imaging, and is confrmed by a positive skin test against Aspergillus antigen, and measurement of IgE and A. fumigatus-specifc antibodies.

- Treatment usually starts with systemic corticosteroids.

115. B. Bilateral sacular bronchiectasis

Chest computed tomography (CT) is more specific for bronchiectasis and is the imaging modality of choice for confirming the diagnosis.

CT findings include airway dilation (detected as parallel "tram tracks" or as the "signet-ring sign" – a cross-sectional area of the airway with a diameter at least 1.5 times that of the adjacent vessel), lack of bronchial tapering (including the presence of tubular structures within 1 cm from the pleural surface) bronchial wall thickening in dilated airways, inspissated secretions (e.g., the "tree-in-bud" pattern), or cysts emanating from the bronchial wall (especially pronounced in cystic bronchiectasis.

116. D. Wegener's Granulomatosis

Granulomatosis with polyangiitis (formerly Wegener's granulomatosis):

Characterised by granuloma formation in the nasopharynx, airways and kidney (glomerulonephritis). It presents with epistaxis, nasal crusting and sinusitis, but haemoptysis, mucosal ulceration and deafness are also seen.

Pulmonary infiltrates and cavitating nodules occur in 50% of patients. Patients are usually c-ANCA–positive, with elevated CRP and ESR.

Management is with high-dose steroids and cyclophosphamide, followed by maintenance with lower-dose steroids and azathioprine, methotrexate or mycophenolate.

117. C. Stage 2 sarcoidosis

Stage 1 is hilar adenopathy alone, often with right paratracheal involvement.

Stage 2 is a combination of adenopathy plus infiltrates.

Stage 3 reveals diffuse infiltrates alone.

Stage 4 consists of fibrosis

118. C. Usual interstitial pneumonia

Idiopathic pulmonary fibrosis (IPF)/ UIP is defined as a specific form of chronic, progressive, fibrosing, interstitial pneumonitis of unknown cause, occurring primarily in older adults.

- It is characterised by progressive worsening of dyspnoea and lung function, and is associated with apoor prognosis.
- CT is an essential component of the diagnostic pathway in IPF. The usual interstitial pneumonitis (UIP) pattern on CT is characterised by the presence of reticular opacities, often associated withtraction bronchiectasis.
- Honeycombing is common and is critical for making a definite diagnosis. If honeycombing is absentbut the imaging features otherwise meet criteria for UIP, the imaging features are regarded as representing possible UIP and surgical lung biopsy is necessary to make a definitive diagnosis.
- The histopathological hallmark and principal diagnostic criterion in lung biopsy is a heterogeneousappearance at low magnification in which areas of fibrosis with scarring and honeycomb alternatewith areas of less affected or normal parenchyma (UIP pattern)

119. A. Cavity commonly seen

Cavitation is rare in sarcoidosis

120. A. Pirfenidone

- Idiopathic pulmonary fibrosis (IPF) is defined as a specific form of chronic, progressive, fibrosing, interstitial pneumonitis of unknown cause, occurring primarily in older adults.
- It is characterised by progressive worsening of dyspnoea and lung function, and is associated with a poor prognosis.
- CT is an essential component of the diagnostic pathway in IPF. The usual interstitial pneumonitis UIP) pattern on CT is characterised by the presence of reticular opacities, often associated with traction bronchiectasis.
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- The histopathological hallmark and principal diagnostic criterion in lung biopsy is a heterogeneous appearance at low magnification in which areas of fibrosis with scarring and honeycomb alternate with areas of less affected or normal parenchyma (UIP pattern)
- Until recently, there was insufficient evidence to support the use of any specific pharmacological therapy for patients with IPF. Data from phase III, randomised, double-blind, placebo-controlled trials demonstrate that pirfenidone reduces the decline in lung function and improves progression free survival time. In these studies, treatment with pirfenidone was safe and generally well tolerated. In 2015, nintedanib , a tyrosine kinase inhibitor, received FDA approval for the treatment of patients with idiopathic pulmonary fibrosis.

121. D. Hypersensitivity pneumonitis

ILDs associated with smoking : Respiratory bronchiolitis associated ILD

Desquamative interstitial pneumonia Adult pulmonary Langerhcell histiocytosis Acute eosinophilic pneumonia

Pulmonary haemorrhage syndromes

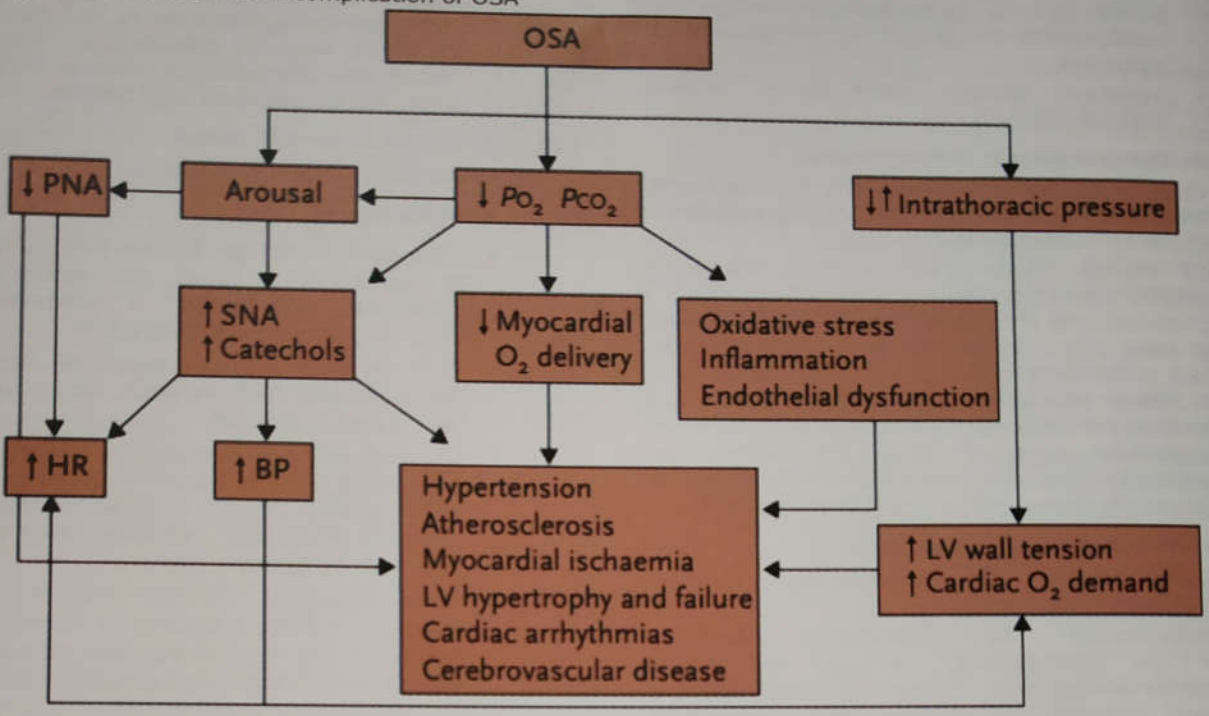
Idiopathic pulmonary fibrosis

122. C. Intra arterial oxygen monitoring

Components of polysomnography : EEG- Electro encephalography, EOG - Electro oculography, ECG- Electro cardiography, EMG Electro myography, Spo2, Snoring MIC , Nasal/Oral Airflow, Thoracic Effort & Abdominal Effort and Body Position. Intra arterial oxygen monitoring is not part of polysomnography

123. A Impotence

Impotence is not a known complication of OSA



124. D. Personality changes may be the presenting complaint.

Obstructivesleep apnea syndrome is a complex entity that involves intermittent upper-airway obstruction during sleep. Most of the manifestations, such as hypertension, cor pulmonale, chronic fatigue, personality changes, and disordered sleep behavior, resolve when obstruction is bypassed by a tracheostomy or endotracheal tube. Although the syndrome is more commonin men, the prevalence increases in women after menopause. Alcohol and sedatives canexacerbate ventilatory obstruction by decreasing upper-airway muscle tone.

125. A. UIP

The most common imaging pattern of ILD in patients with RA is a UIP pattern, although NSIP patterns are notuncommon. There is evidence that survival in patients with RA is decreased in those with a UIP pattern and amongthose with more extensive fibrosis in general.

126. B. SLE

Pulmonary complications are common in patients with systemic lupus erythematosus (SLE). The most common manifestation is pleuritis with or without effusion. Other possible manifestations include pulmonary hemorrhage, diaphragmatic dysfunction with loss of lung volumes (the so-called shrinking lung syndrome)

127. C. Hemosiderin laden macrophages

Diffuse alveolar hemorrhage (DAH) is a pathologic process that can occur in many diseases including vasculitis, Goodpasture's syndrome, systemic lupus erythematosus, and idiopathic pulmonary hemosiderosis.

On bronchoscopy, one would expect to see a progressively increasing bloody return on sequential aliquots of lavage fluid. Microscopic examination would show hemosiderin-laden macrophages and red blood cells.Ferruginous bodies and dust particles are found in asbestos-related pulmonary disease. Lymphocytosis is common to sarcoidosis has an elevated CD4:CD8 ratio. The bronchoalveolar lavage fluid in pulmonary alveolar proteinosis has a milky appearance with foamy macrophages.

128. A. Small cell lung cancer is more radiosensitive

- Approximately 20% of all lung cancers are small cell cancers. These tumors tend to present centrally, be derived from neuroendocrine tissues, and be much more chemo- and radiosensitive than non-small cell cancer.
- All histologic types of lung cancer are associated with smoking. Patients with small cell lung cancer carry poor prognosis due to rapid and extensive metastasis.

129. C. A 45-year-old woman who has never smoked with an adenocarcinoma

- Mutations of the epidermal growth factor receptor (EGFR) haverecently been recognized as important mutations that affect the response of non–small-cell lungcancers to treatment with EGFR tyrosine kinase inhibitors.
- Initial studies of erlotinib in allpatients with advanced non–small-cell lung cancer failed to show a treatment benefit;however,when

only those patients with EGFR mutations were considered, treatment with anti-EGFRtherapy improved progression-free and overall survival.

- Patients who are more likely to haveEGFR mutations are women, nonsmokers, Asians, and patients with adenocarcinomahistopathology.

130. C. Oat cell variant is typically associated with hilar adenopathy. Most common histological variant of lung cancer is adenocarcinoma. Small cell or oat cell carcinoma typicallyiscentralandpresentswithhilaradenopathyandassociatedwithsmoking.Cavitationsare seen in squamous cell and large cell variants.

131. B. Cough

132. D. Squamous cell

Hypercalcemia which is a life threatening metabolic abnormality in squamous cell (Epidermoid) lung cancer due to production of paratharmone related peptide

133. C. Vitamin C deficiency

Cigarette smoking is the cause of the majority of lung cancers, several other risk factors have been identified, including occupational exposures toasbestos, arsenic, bischloromethylether, hexavalent chromium, mustard gas, nickel (as in certain nickel-refining processes), and polycyclic aromatichydrocarbons.

The risk of lung cancer appears to be higher among individuals with low fruit and vegetable intake during adulthood. Ionizing radiation isalso an established lung carcinogen. Prolonged exposure to low-level radon in homes might impart a risk of lung cancer equal or greater than that of ETS. Prior lung diseases such as chronicbronchitis, emphysema, and tuberculosis have been linked to increased risks of lung cancer as well.

134. C. adenocarcinoma

In lifetime never smokers or former light smokers (<10 pack-year history), women, and younger adults (<60 years), adenocarcinoma tends to be the most common form of lung cancer.

135. A. Adenocarcinoma

Skeletal–connective tissue syndromes include clubbing in 30% of cases (usually NSCLCs) and hypertrophic primary osteoarthropathy in 1–10% of cases(usually adenocarcinomas). Patients may develop periostitis, causing pain, tenderness, and swelling over the affected bones and a positive bone scan.

136. D. Small cell carcinoma

- Small cell lung carcinoma (SCLC) is an aggressive form of lung cancer that is strongly associated with cigarette smoking and has a tendency for early dissemination.
- It appears as hilar or perihilar mass often with mediastinal lymphadenopathy and lobar collapse. Some SCLCs produce antidiuretic hormone (ADH) and the clinical SIADH (syndrome of inappropriate antidiuretic hormone) has been reported to occur in 7–16% of SCLC cases.
- SIADH manifests as euvolaemic hypo-osmolar hyponatraemia characterised by low serum osmolality and inappropriately high urine osmolality in the absence of diuretic treatment, adrenal insufciency, heart failure, cirrhosis or hypothyroidism.
- The majority of squamous cell lung carcinomas arise centrally in the mainstem, lobar or segmental bronchi, but have been reported as a rare cause of SIADH.
- Compared with other lung cancers, adenocarcinomas are most frequently peripheral nodules and infrequently present in a central location as a hilar or perihilar mass. In adenocarcinoma with lepidic growth neoplastic cells spread along pre-existing alveolar structures without evidence of stromal, vascular, or pleural invasion.

137. B. TB

TB can present with fever, cough and expectoration, SOB 2 months duration. CECT chest showing B/L upper lobe fibrotic lesions, mediastinal necrotic Lymphnodes with peripheral rim enhancement. In sarcoid lymphnodes necrotic areas are not evident

138. A. Antigens from all BCG strains and nontuberculous mycobacteria are present in the assay

These assays measure T cell release of IFN-γ in response to stimulation with the highly TB-specific antigens ESAT-6 and CFP-10.

- These tests likely measure the response of recirculating memory T cell
- Specificity of the test is superior to Tuberculin skin test in BCG vaccinated patients
- Sensitivity is comparable to Tuberculin skin test

139. D. Prophylactic therapy with isoniazid for 6 months

Isoniazid preventive therapy in HIV patients without active TB: People living with HIV (PLHIV) should be screened for TB using four symptom complex (current cough or fever or weight loss or night sweats) at HIV care settings and those with any of these symptoms should be evaluated for ruling out active TB.

All asymptomatic patients and those, in whom active TB is ruled out, should be offered Isoniazid Preventive Therapy (IPT) for six month

140. D. It is commonly seen in children

- A rare presentation seen in the elderly, cryptic miliary TB has a chronic course characterized by mild intermittent fever, anemia, and – ultimately – meningeal involvement preceding death.

141. A. flu like syndrome is usually seen with rifampicin being taken on daily basis

Flu like syndrome is usually seen with rifampicin being taken on intermittent basis and disappears if taken daily

142. C. Any one of second line aminoglycosides and one of the Fluoroquinolones

143. A. Respiratory alkalosis

Disorder	Primary Defect	Compensatory Response
Respiratory acidosis pH↓		
Acute	↑PCO_2	↑HCO_3^-
Chronic	↑PCO_2	↑HCO_3^-
Respiratory alkalosis pH↑		
Acute	↓PCO_2	↓HCO_3^-
Chronic	↓PCO_2	↓HCO_3^-
Metabolic acidosis pH↓	↓HCO_3^-	↓PCO_2
Metabolic alkalosis pH↑	↑HCO_3^-	↑PCO_2

Elevated pH with decreased PaCO2 and HCO3- is suggestive of respiratory alkalosis

144. B. Compensated respiratory acidosis

	Range of Values			
Disorder	Prediction of compensation	ph	HCO_3^-	Pa_{CO_2}
Metabolic acidosis	$Pa_{CO_2} = (1.5 \times) HCO_3^-) + 8 \pm 2$ or Pa_{CO_2} will ↓ 1.25 mm Hg per mmol/L ↓ $[HCO_3^-]$ or $Pa_{CO_2} = [HCO_3^-] + 15$	Low	Low	Low
Metabolic alkalosis	Pa_{CO_2} will ↑ 0.75 mmHg per/L ↑ in $[HCO_3^-]$ or Pa_{CO_2} will ↑ 6 mmHg per 10mmo/L ↑ in $[HCO_3^-]$ or $Pa_{CO_2} = [HCO_3^-] + 15$	High	High	High
Respiratory alkalosis Acute Chronic	$[HCO_3^-]$ will ↓ 0.2mmol/L per mmHg ↓ in Pa_{CO_2} $[HCO_3^-]$ will ↓ 0.4mmol/L per mmHg ↓ in Pa_{CO2}	High	Low	Low
Respiratory acidosis Acute Chronic	$[HCO_3^-]$ will ↑ 0.1mmol/L per mmHg ↑ in Pa_{CO_2} $[HCO_3^-]$ will ↑ 0.4mmol/L per mmHg ↑ in Pa_{CO_2}	Low	High	Low

This is a chronic process as given by H/O. pH= 7.34, PCO2= 60, PO2 70, HCO3- =34. Decreased Ph with elevated PaCO2 and HCO3 is suggestive of primary respiratory acidosis. Here the elevated HCO3 matches with the elevated PaCo2 so it's a compensated process.

145. A. Compensated High Anion gap acidosis

Serum sodium=134 mEqL, serum potassium=3.7 mEqL, serum chloride=106mEqL, plasma bicarbonate [HCO3]=6mEq/L, arterial pH=7.3, and PCO2=19mmHg. Decreased Ph, PaCO2 and HCO3 are S/O metabolic acidosis. PaCO2 is with in expected range so its compensated.

Anion gap = $Na^+ - (HCO_3^- + Cl^-)$

Here anion gap is 134- [106+6] = 22(normal is 8 to 12 meq) so high anion gap acidosis

146. A. Diarrhoea

The anion gap is the difference between primary measured cations (sodium Na+) and the primary measured anions (chloride Cl- and bicarbonate HCO3-) in serum. Normal anion gap is in the range of 8 – 12 meq/L

Causes of High anion Gap Acidosis

a) Ketoacidosis: Diabetic, Alcoholic, starvation
b) Lactic acidosis: Shock, mesenteric ischemia.
c) Renal failure (uremia)
d) Methanol poisoning
e) Ethylene glycol poisoning
f) Paraldehydc poisoning
g) Salicylate intoxication

Causes of Normal Anion Gap Acidosis:-

Pancreatic Fistula, Ureterosigmoidostomy, Diarrhoea, Carbonic anhydrase inhibitor use, Rapid saline administration, Aldosterone deficiency and renal Tubular acidosis

147. D. Barterr syndrome

Diagnosis of Metabolic Alkalosis

Saline-Responsive Alkalosis	Alkalosis Saline-Unresponsive Alkalosis
Low Urinary [Cl^-] (<10 mEq/L)	High or Normal Urinary [Cl^-] (>15-20 mEq/L)
Normotensive	Hypertensive
Vomiting	Primary aldosteronism
Nasogastric aspiration	Cushing's syndrome
Diuretic use (distant)	Renal artery stenosis
Posthypercapnia	Renal failure plus alkali therapy
Villous adenoma	Normotensive Mg^{2+} deficiency
Bicarbonate treatment of organic acidosis	Severe K^+ deficiency
K^+ deficiency	Bartter's syndrome
	Gitelman's syndrome

148. D. Chronic respiratory alkalosis

Chronic respiratory alkalosis is the most common acid-base disturbance in critically ill patients and, when severe, portends a poor prognosis. Many cardiopulmonary disorders manifest as respiratory alkalosis

149. C. Laryngeal obstruction

Laryngeal obstruction can cause respiratory acidosis

150. B diethyl glycol poisoning

High anion gap acidosis with oxalic acid crystals in urine is suggestive of ethylene glycol poisoning.

Section A. Clinical Examination:

151. Pulsus paradoxus is present in all Except:
a. Emphysema
b. Pulmonary embolism
c. Hypovolemic shock
d. Hypertrophic cardiomyopathy

152. Pulsus alternans occurs in-
a. Constrictive pericarditis
b. Viral myocarditis
c. Cardiac tamponade
d. Myocardial Infarction

153. All of the following statements about Pulsus Bigeminus are true, except-
a. Must be distinguished from Pulsus Alternans
b. Is a sign of digitalis toxicity
c. Compensatory pause is absent
d. Rhythm is Irregular

154. Tapping apical impulse is seen in-
a. MR b. AR
c. AS d. MS

155. Pulse pressure is:
a. 1/3 diastolic + 1/2 systolic B.P.
b. 1/2 diastolic + 1/3 systolic B.P.
c. Systolic – diastolic B.P.
d. Diastolic + ½ systolic B.P.

156. Wide pulse pressure may be seen in all Except:
a. Aortic Regurgitation
b. PDA
c. Complete Heart Block
d. Congestive Heart failure

157. Pulse deficit of more than 10 per minute is seen in-
a. Ventricular Premature Contraction (VPC)
b. Bradyarrhythmias
c. Atrial Fibrillation (AF)
d. Ventricular Fibrillation (AV)

158. Pulse deficit may be seen in all of the following, Except:
a. Ventricular Premature Contraction (VPC)
b. Heart Block
c. Atrial Fibrillation (AF)
d. seen in all of them

159. All of the following statements about Pulse deficit in Atrial Fibrillation are true, except:
a. Usually more than 10/minute
b. Increases with faster ventricular rates
c. May be absent in digitalis intoxication
d. Radial pulse rate may be more than ventricular pulse rate

160. Which of the following is the correct statement regarding findings in JVP
a. Cannon wave: Complete heart block
b. Slow y descent: Tricuspid regurgitation
c. Giant c wave: Tricuspid stenosis
d. Increased JVP with prominent pulsations: SVC obstruction

161. In the JVP, 'a' waves are absent in:
a. Atrial fibrillation b. Mitral stenosis
c. Tricuspid atresia d. Sick sinus syndrome

162. 'C' wave in JVP is due to-
a. Atrial contraction
b. Tricuspid valve bulging into right atrium
c. Right atrial filling
d. Rapid ventricular filling

163. Erb's Point in cardiology refers to:
a. Right 2nd intercostal space
b. Left 2nd intercostal space
c. Left 3rd intercostal space
d. Left 2nd intercostal space

164. P2 is best appreciated in:
a. 2nd left intercostal space
b. 2nd right intercostal space
c. 4th left intercostal space
d. 5th left intercostal space

165. First heart sound in soft in all, except:
a. Short PR interval
b. Ventricular septal defect
c. Mitral regurgitation
d. Calcified valve

166. Paradoxical splitting of second heart sound is seen in?
a. RBBB b. ASD
c. LBBB d. VSD

167. Wide fixed split S2 occurs in:
a. VSD (ventricular septal defect)
b. Mitral stenosis
c. ASD (Atrial septal defect)
d. Coarctation of aorta

168. Third heart sound (left sided) is seen in all except:
a. Athletes b. Mitral stenosis
c. Constrictive pericarditis d. LVF

169. All of the following statements about third Heart sound are true, except:
a. Occurs due to rapid filling of the ventricles during atrial systole
b. Seen in Constrictive Pericarditis
c. Seen in Atrial Septal Defect (ASD)
d. Seen in in Ventricular Septal Defect (VSD)

151. d	152. c	153. d	154. d	155. c	156. d	157. c	158. b	159. d	160. a	161. a
162. b	163. c	164. a	165. a	166. c	167. c	168. d	169. a			

170. Which of the following is true about fourth heart sound 'S4':
a. Can be heard by the unaided ear
b. Frequency is greater than 20 Hz
c. Heard during ventricular filling phase
d. Heard during ventricular ejection phase

171. S4 is not seen in:
a. Ventricular aneurysm
b. Mitral regurgitation
c. Hypertrophic cardiomyopathy
d. Hypertension

172. Following is true regarding opening snap:
a. It is a high-pitched diastolic sound.
b. It is due to opening of stenosed aortic valve.
c. It indicates pulmonary arterial hypertension.
d. It precedes the aortic component of second heart sound.

173. Midsystolic click is characteristic feature of:
a. MVP b. MS
c. AR d. AS

174. An early systolic murmur may be caused by all of the following except:
a. Small ventricular septal defect
b. Papillary muscle dysfunction
c. Tricuspid regurgitation
d. Aortic stenosis

175. All of the following murmurs may be heard in patients with aortic regurgitation except:
a. High-pitched decrescendo diastolic murmur.
b. Soft, low pitched mid diastolic rumbling murmur.
c. Mid-systolic ejection flow murmur.
d. Pansystolic murmur.

176. What is false in relation to Carey Coombs Murmur?
a. Delayed Diastolic Murmur
b. Seen in Rheumatic Fever
c. Associated with AR
d. Low Pitched Murmur

177. Rytand's murmur is seen in
a. A-V Block b. Mitral Stenosis
c. Aortic Stenosis d. Aortic Regurgitation

178. A new systolic murmur after Acute myocardial infarction may be due to all of the following Except:
a. Complete heart block
b. Rupture of Interventricular septum
c. Papillary muscle dysfunction
d. Ischemic cardiomyopathy

179. Continuous murmur is seen in all of the following conditions except:
a. Ventricular septal defect with aortic regurgitation
b. Patent ductus arteriosus
c. Coronary arteriovenous fistula
d. Venous hum

Section B. ECG and Arrythmias

180. Normal heart axis is:
a. -90 to +900 b. -90 to +1800
c. -30 to +1100 d. -90 to 180

181. -30 TO -60degree axis deviation indicates:
a. Left Axis Deviation
b. Right Axis Deviation
c. Extreme Right Axis Deviation
d. Normal Cardiac Axis

182. Left Axis Deviation is seen as
a. Positive in Lead I and Positive in Lead aVF
b. Positive in Lead I and Negative in Lead aVF
c. Negative in Lead I and Negative in Lead aVF
d. Negative in Lead I and Positive in Lead aVF

183. The normal P wave is inverted in lead:
a. LI b. LII
c. aVF d. aVR

184. The normal P wave is biphasic in lead:
a. V1 b. LII
c. aVF d. aVR

185. Absent P Wave in:
a. Atrial Fibrillation b. Cor-pulmonale
c. Mitral Stenosis d. COPD

186. In a patient in regular rhythm, Leads II, III and AVF reveal a Saw-Tooth Pattern. Which of the following is the most likely diagnosis:
a. Atrial fibrillation
b. Atrial Flutter with Variable Block
c. Atrial Flutter with Fixed Block
d. Multifocal Atrial Tachcardia

187. A wide and notched P wave is typically seen in-
a. Mitral Stenosis b. CorPulmonale
c. COPD d. Pulmonary embolism

188. A QRS duration between 100 and 120 milliseconds suggests all of the following, Except:
a. Normal
b. Left anterior Fascicular Block
c. Left Posterior Fascicular Block
d. Left Bundle Branch Block

189. Wide QRS complex > 0.12 seconds may be seen in all of the following EXCEPT:
a. Hyperkalemia
b. Wolf Parkinson White Syndrome
c. Ventricular Tachycardia
d. Left Anterior Fascicular Block

190. Wide QRS complex is typically seen in
a. Bundle Branch block b. Sick sinus syndrome
c. Mobitz Type I block d. Mobitz Type II block

170. c	171. b	172. a	173. a	174. d	175. d	176. c	177. a	178. a	179. a	180. c
181. a	182. d	183. d	184. a	185. a	186. c	187. a	188. d	189. d	190. a	

191. Low QRS voltage on ECG indicates:
a. Pulmonary embolism
b. Pericardial effusion
c. Cor pulmonale
d. Infective endocarditis

192. Low QRS voltage on ECG with left ventricular hypertrophy on Echocardiography suggests a diagnosis of:
a. Pericardial effusion
b. Cardiac Amyloidosis
c. Corpulmonale
d. Infective endocarditis

193. In LVH, SV1 + RV 6 is more than _____mm?
a. 25
b. 30
c. 35
d. 40

194. Tall T waves on ECG are seen in:
a. Hyperkalemia
b. Hypokalemia
c. Hypercalcemia
d. Hypocalcemia

195. QT prolongation is seen in all, except:
a. Hypothermia
b. Digitalis toxicity
c. Hypocalcemia
d. Romano Ward syndrome

196. QT interval is shortened in-
a. Hypocalcaemia
b. Hypokalemia
c. Hypercalcemia
d. Hyperkalemia

197. The following ECG findings are seen in Hypokalemia:
a. Increased PR interval with ST depression
b. Increased PR interval with Peaked T wave
c. Prolonged QT interval with T wave inversion
d. Decreased QT interval with ST depression

198. All of the following are the electrocardiographic features of Hyperkalemia, except-
a. Prolonged PR interval
b. Prolonged QT interval
c. Sine wave patterns
d. Loss of P waves

199. All of the following electrocardiographic findings may represent manifestations of digitalis intoxication, except:
a. Bigeminy
b. Junctional tachycardia
c. Atrial flutter
d. Atrial tachycardia with variable block

200. Osborne waves in ECG are seen in-
a. Hyperthyroidism
b. Hypothermia
c. Hypocalcemia
d. Hypokalemia

201. Epsilon wave is seen in
a. Brugada syndrome
b. Hypothermia
c. WPM syndrome
d. Arrhythmogenic right ventricular dysplasia

202. All of the following conditions are more commonly associated with LBBB pattern than RBBB Pattern on ECG, Except:
a. Acute MI
b. Aortic valve disease
c. Lev Disease
d. Ashman Phenomenon

203. Idiopathic degeneration of the proximal bundle branch fibres is known as:
a. Lev's Disease
b. Lenegre's Disease
c. Ashman Phenomenon
d. Brugada Syndrome

204. Brugada Syndrome is associated with:
a. Left Bundle Branch Block
b. Left Anterior Fascicular block
c. Left Posterior Fascicular block
d. Right Bundle Branch Block

205. A chronic alcoholic develops palpitation suddenly after alcohol binge. Which of the following arrhythmia is most commonly associated with alcohol binge in the alcoholics?
a. Ventricular fibrillations
b. Verticular premature contractions
c. Atrial flutter
d. Atrial fibrillation

206. Which of the following agents should not be used for oral anticoagulation in high risk patients with Atrial Fibrillation
a. Warfarin
b. Dabigatran
c. Rivoraxaban
d. Clopidogrel

207. All of the following are true about Atrial Fibrillation, Except:
a. Risk of thromboembolism
b. Digoxin for treatment
c. Anticoagulation not required
d. Aspirin in low risk patients

208. Drug of choice in PSVT is:
a. Amiodarone
b. Lingnocaine
c. Quinidine
d. Adenosine

209. Drug of choice for maintenance therapy in PSVT is
a. Amiodarone
b. Lignocaine
c. Verapamil
d. Adenosine

210. All of the following features can differentiate between ventricular tachycardia and supraventricular tachycardia except:
a. QRs < 0.14 seconds
b. Ventricular rate > 100/min
c. Variable first heart sound
d. Relieved by carotid sinus massage

191. b	192. b	193. c	194. a	195. a	196. d	197. a	198. b	199. b	200. b	201. d
202. d	203. a	204. b	205. d	206. d	207. c	208. d	209. c	210. d		

211. Accelerated Idioventricular Rhythm (AIVR) is the most common arrhythmia associated with:

a. Dilated cardiomyopathy
b. Myocardial Reperfusion
c. Digitalis Intoxication
d. Myocarditis

212. Torsade-de-pointes is caused by-

a. Hypermagnesemia
b. Metabolic acidosis
c. Hypomagnesmia
d. Metabolic alkalosis

213. The most common accessory pathways leading to WPW syndrome is:

a. Left free wall
b. Posteroseptal
c. Right free wall
d. Anteroseptal

214. The most common re-entrant tachycardia associated with WPW syndrome is

a. Orthodromic AV re-entry
b. Antidromic AV re-entry
c. Rapidly conducting AF
d. Ventricular tachycardia

215. All of the following statements about WPW syndrome are true, Except:

a. More common in females
b. Lt ventricular aberrant is commonly seen
c. Prevalence with age
d. Heart is structurally normal

216. A patient with short PR interval and Delta waves on ECG presents to the emergency department with Atrial Fibrillation and rapid ventricular rate. He is hemodynamically stable. All of the following agents may be used in the management, except:

a. Verapamil
b. Procainamide
c. Ibutilide
d. Amiodarone

217. All of the following are feature of Mobitz Type I block, except:

a. Constant PR interval
b. Normal QRS morphology
c. Regular Atrial Rhythm
d. Atrial rate > ventricular rate

218. All of the following may be seen in Mobitz Type II second degree Heart block, except:

a. Normal QRS complex morphology
b. Atrial rate more than ventricular rate
c. Constant PR interval
d. No constant Relationship between P wave and QRS complex

219. In the treatment of severe bradycardia, all of the following can be the best modality of treatment except:

a. Atropine
b. Pacing
c. Isoproterenol
d. Diltiazem

Section C: Rheumatic Fever, Infective Endocarditis & Valvular Heart Disease

220. Earliest valvular lesion in a case of acute rheumatic fever is-

a. Mitral regurgitation (MR)
b. Aortic Regurgitation (AR)
c. Mitral stenosis (MS)
d. Aortic Stenosis (AS)

221. Diagnostic criterion for Infective Endocarditis include all, Except:

a. Positive Echocardiogram
b. Positive Blood culture
c. Raised ESR
d. Positive Rheumatoid Factor

222. Infective endocarditis is least common in-

a. Mitral stenosis
b. Aortic stenosis
c. AR
d. MR

223. Which is most common predisposing condition causing Infective endocarditis in young adults

a. Mitral stenosis
b. Mitral regurgitation
c. Mitral valve prolapse
d. Tricuspid stenosis

224. Most common heart valve involved in IV drug user is-

a. Mitral valve
b. Aortic valve
c. Pulmonary valve
d. Tricuspid valve

225. Roth's spots are seen in:

a. Infective Endocarditis
b. Rheumatic Endocarditis
c. Central Retinal Arterial Occlusion (CRAO)
d. Typhoid

226. A patient with a prosthetic heart valve develops endocarditis eight months after valve replacement. Most likely organism responsible is:

a. Staphylococcus Aureus
b. Staphylococcus Epidermidis
c. Streptococcus Viridans
d. HACEK group

227. Acute infective Endocarditis with abscess formation is most commonly associated with

a. Listeria
b. Staphylococcus
c. Streptococcus
d. Enterococcus

228. Antibiotic Prophylaxis for infective endocarditis is indicated in:

a. Isolated secundum ASD
b. Mitral valve prolapse without regurgitation
c. Prior coronary artery bypass graft
d. Coarctation of aorta

229. All of the following statements about Fungal Endocarditis are true except-

a. Candida is the most common agent
b. Life-long antifungal agents may be required
c. Surgical treatment is often recommended
d. Good prognosis with treatment

211. b	212. c	213. a	214. a	215. a	216. a	217. a	218. d	219. d	220. a	221. d
222. a	223. c	224. d	225. a	226. b	227. b	228. d	229. d			

230. Mitral stenosis is associated with:
a. Right ventricular hypertrophy
b. Left ventricular hypertrophy
c. Left axis deviation
d. QRS complex

231. Mid diastolic Murmur with presystolic accentuation is typically seen in:
a. Mitral stenosis
b. Mitral Regurgitation
c. Aortic stenosis
d. MVP

232. All of the following may be seen as severity of mitral stenosis increases Except:
a. Pulsatile liver
b. Atrial fibrillation
c. Opening snap delayed form S2
d. Length of murmur is prolonged

233. Which clinical sign is suggestive of elevated pulmonary wedge pressure in mitral stenosis?
a. Loud OS
b. Loud S1
c. Mid-diastolic murmur
d. Short A2-OS interval

234. Severity of Mitral Regurgitation may be judged by
a. Intensity of murmur
b. Duration of murmur
c. Left ventricular S3
d. Loud S1

235. A 59 years-old man with severe myxomatous mitral regurgitation is asymptomatic, with a left ventricular ejection fraction of 45% and an endsystolic diameter index of 2.9 cm/m2. The most appropriate treatment is-
a. Mitral valve repair or replacement
b. No treatment
c. ACE inhibitor therapy
d. Digoxin and diuretic therapy

236. True regarding Mitral valve prolapse syndrome is all, EXCEPT-
a. More common in female
b. Mostly symptomatic
c. Usually benign
d. Transient cerebral ischemia can occur

237. A 26-year-old asymptomatic woman is found to have arrthymias and a systolic murmur associated with midsystolic clicks; which investigation would you use:
a. Electrophysiological testing
b. Tc scan
c. Echocardiography
d. Angiography

238. A 63 years old man present with a triad of angina, syncope and congestive heart failure. Which of the following valvular heart lesion can be suspected?
a. Mitral stenosis
b. Tricuspid regurgitation
c. Aortic stenosis
d. Aortic regurgitation

239. Which of the following valvular heart diseases is most commonly associated with sudden death:
a. Aortic stenosis
b. Mitral Stenosis
c. Mitral Regurgitation
d. Aortic Regurgitation

240. In severe aortic stenosis true finding is:
a. Late systolic ejection click
b. Heaving with outward apex
c. ST segment changes in ECG
d. Loud S2

241. Which of the following physical signs is seen in a patient with severe aortic stenosis:
a. Opening snap
b. Diastolic rumble
c. Holosystolic murmur
d. Delayed peak of systolic murmur

242. Sub-valvular Aortic Stenosis is known to be associated with all of the following, except:
a. Aortic Regurgitation
b. Coarctation of Aorta
c. Tricuspid Valve Atresia
d. Ventricular Septal Defect

243. The most common complication of Sub-valvular Aortic Stenosis is:
a. Aortic Reguritation
b. Mitral Regurgitation
c. Tricuspid regurgitation
d. Pulmonary Regurgitation

244. Acute Aortic regurgitation is seen in all of the following except:
a. Marfan's syndrome
b. Acute myocardial infarction
c. Bacterial endocarditis
d. Ankylosing spondylitis

245. Aortic regurgitation does NOT occur in:
a. Acute MI
b. Marfan's syndrome
c. Rheumatic heart disease
d. Infective endocarditis

246. Duroziez's sign is seen in
a. Aortic Regurgitation
b. Tricuspid Regurgitation
c. Mitral Stenosis
d. Pericardial effusion

247. The most common cause of tricuspid regurgitation is secondary to-
a. Rheumatoid heart disease
b. Dilatation of right ventricle
c. Coronary artery disease
d. Endocarditis due to intravenous drug abuse

230. a	231. a	232. b	233. d	234. b	235. a	236. b	237. c	238. c	239. a	240. a
241. d	242. b	243. b	244. b	245. a	246. a	247. b				

248. Carvallo's sign is seen in–

a. Tricuspid Regurgitation b. Mitral Stenosis
c. Aortic Stenosis d. Aortic Regurgitation

Section D : Cardiomyopathy & Pericardial Diseases

249. Contractile Dysfunction is the dominant feature of which of the following types of cardiomyopathies

a. Dilated cardiomyopathy
b. Restrictive cardiomyopathy
c. Hypertrophic cardiomyopathy
d. Infiltrative cardiomyopathy

250. The most common type of cardiomyopathy in India is:

a. Dilated cardiomyopathy
b. Hypertrophic cardiomyopathy
c. Toxic cardiomyopathy
d. Restrictive cardiomyopathy

251. The most common toxin causing Dilated cardiomyopathy is:

a. Alcohol
b. Chemotherapeutic agents
c. Heavy metal
d. Occupational exposure

252. Tako-Tsubo cardiomyopathy is a type of:

a. Dilated cardiomyopathy
b. Restrictive cardiomyopathy
c. Hypertrophic cardiomyopathy
d. Toxic cardiomyopathy

253. Which of the following heart disease is most commonly cause of sudden death in young Athletes:

a. Aortic Stenosis b. Mitral Regurgitation
c. Aortic Regurgitation d. HOCM

254. Features of Hypertrophic Cardiomyopathy include all of the following except:

a. Asymmetric Septal Hypertrophy
b. Systolic Anterior Motion of Mitral Valve
c. Dynamic Left Ventricular Outflow Obstruction
d. Pathophysiological Systolic Dysfunction

255. A 16 years old male is referred by high school coach for a physical examination before joining the football team. His elder brother had died suddenly during football practise, no autopsy was done. The patient has a loud systolic murmur on chest auscultation. All of the following would be constant with hypertrophic cardiomyopathy, except:

a. A crescendo-decrescendo systolic murmur
b. Murmur radiating to neck
c. Brisk carotid upstroke
d. Increase in murmur during Valsalva or standing

256. Which of the following drugs are contraindicated in HOCM

a. Verepamil b. Propanalol
c. Digoxin d. None of the above

257. The 9 months old child of a diabetic mother presents with tachypnea and hepatomegaly. Echocardiography of the heart showed normal cardiac morphology with asymmetric septal hypertrophy. Which of the following you will give to treat this child:

a. Digoxin b. Frusemide
c. Propranolol d. Isoptin

258. All are the true regarding hypertrophic obstructive cardiomyopathy, except:

a. Digitalis is useful
b. Left ventricular outflow obstruction
c. Asymmetrical septal thickness
d. Double apical impulse

259. All of the following may be seen in patients of cardiac tamponade except:

a. Kussmaul's sign
b. Pulsus paradoxus
c. Electrical alternans
d. Right ventricular diastolic collapse on echocardiogram

260. Beck's Triad is seen in:

a. Constrictive Pericarditis
b. Cardiac tamponade
c. Right ventricular Myocardial Infarction (RVMI)
d. Restrictive Cardiomyopathy

261. A young motorist suffered injuries in a major road traffic accident. He was diagnosed to have fracture of left femur and left humerus. He was also having fractures of multiple ribs anteriorly on both the sides. On examination the blood pressure was 80/60 mm Hg. And heart rate was 140/minute. The patient was agitated, restless, and tachypneic. Jugular veins were distended. Air entry was adequate in both the lung fields. Heart sounds were barely audible. Femoral pulses were weakly palpable but distally no pulsation could be felt. On priority basis, the immediate intervention would be:

a. Rapid blood transfusion
b. Urgent pericardial tap
c. Intercostal tube drainage on both the sides.
d. Fixation of left femur & repair of femoral artery

262. Kussmaul's sign is NOT seen in

a. Restrictive cardiomyopathy
b. Constrictive pericarditis
c. Cardiac tamponade
d. RV infarct

263. Auenbrugger's sign is seen in:

a. Pericardial Effusion
b. Constrictive Pericarditis
c. Aortic Regurgitation
d. Mitral Stenosis

248. a	249. a	250. c	251. a	252. a	253. d	254. d	255. b	256. c	257. c	258. a
259. a	260. b	261. b	262. c	263. a						

264. Preferred Approach for Pericardiocentesis is:

a. Sub-xiphoid
b. Left Parasternal
c. Right Parasternal
d. Apical

265. Which of the following is least likely to cause constrictive pericarditis?

a. Tuberculous pericardial effusion
b. Staphylococcal effusion
c. Post cardiac surgery
d. Acute rheumatic fever

Section E: Hypertension & Coronary Heart Disease

266. Most common cause of Hypertension in adults is:

a. Essential Hypertension
b. Pheochromocytoma
c. Renal Artery Stenosis
d. Chronic Glomerulonephritis

267. Non-modifiable risk factor for hypertension:

a. Gender
b. Obesity
c. Salt intake
d. Cultural characteristic acquired over time

268. A patient with Hypertension presents with Hypokalemia. Aldosterone levels and Renin levels are both elevated. The most likely diagnosis is:

a. Renal ArteryStenosis
b. Primary Hyperaldosteronism (Conn's Syndrome)
c. Addison's Disease
d. Cushing's Syndrome

269. Management of uncomplicated essential hypertension with an estimated risk of atherosclerosis <10% is:

a. No need to treat
b. Diet modification and exercise
c. Diet modification, exercise & drugs
d. Drugs alone

270. First line drug choice for management of hypertension in patients with angina:

a. Beta Blockers
b. ACE Inhibitors
c. Calcium Channel Blockers
d. Hydralazine

271. Which of the following drugs is MOST suitable for a 45-years-old diabetic with blood pressure 150/95 mmHg?

a. Lisinopril
b. Amlodipine
c. Propranolol
d. Hydrochlorothiazide

272. Most common cause of renal artery stenosis in young adults is:

a. Atherosclerosis
b. Non-specific aorto-arteritis
c. Fibro muscular dysplasia
d. None of the above

273. In primary pulmonary hypertension basic abnormality in gene lies in:

a. Bone morphogenetic protein receptor II
b. Endothelin
c. Homebox gene
d. PAX – 11

274. A 50 years old man, an alcoholic and a smoker presents with a 3 hour history of increasing shortness of breath. He started having this pain while eating, which was constant and radiated to the back and interscapular region. He was known hypertensive. On examination, he was cold and clammy with a heart rate of 130/min, and a BP of 80/40 mmHg. JVP was normal. All peripheral pulses were present and equal. Breath sounds were decreased at the left lung base and chest x-ray showed left pleural effusion. Which one of the following is the most likely diagnosis?

a. Acute aortic dissection
b. Acute myocardial infarction
c. Rupture of the esophagus
d. Acute pulmonary embolism

275. The risk of coronary artery disease is associated with an elevated level of

a. Cysteine
b. Cystine
c. Homocysteine
d. Selenocysteine

276. The protein which has structural homology with plasminogen and is responsible for myocardial infarction and stroke

a. HDL
b. LP(a)
c. LDL
d. Homocysteine

277. An association of which of the following bacteria has been suggested with atherosclerosis:

a. Staphylococcus Aureus
b. Streptococcus Pneumoniae
c. Chlamydia Pneumoniae
d. Aspergillus Fumigatus

278. The most important modifiable risk factor for atherosclerosis is:

a. Hyperlipidemia
b. Diabetes mellitus
c. Cigarette Smoking
d. Hypertension

279. Which of the following dietary interventions has shown to reduces mortality in patients with coronary heart disease:

a. High Fibre diet
b. Steral Esters
c. Potassium supplements
d. Omega 3 polysaturated fatty acids

280. All of the following arteries are common sites of occlusion by a Thrombus except:

a. Left anterior descending
b. Right coronary artery
c. Circumflex coronary artery
d. Marginal artery

264. a	265. d	266. a	267. a	268. a	269. b	270. a	271. a	272. c	273. a	274. a
275. c	276. b	277. c	278. c	279. d	280. d					

281. Most common site of myocardial infraction is:

a. Anterior wall of left ventricle
b. Posterior wall of left ventricle
c. Posterior wall of right ventricle
d. Inferior wall of left ventricle

282. The most common site for myocardial infarction is:

a. Left atrium
b. Left ventricle
c. Right atrium
d. Right ventricle

283. Which of the following ECG leads is most sensitive in detecting intraoperative myocardial ischemia

a. Lead I
b. Lead II
c. Lead V1
d. Lead V5

284. Wellen's syndrome suggests:

a. Stable angina
b. Unstable angina
c. Prinzmetal angina
d. Ludwig angina

285. In unstable angina:

a. CK-Mb is elevated
b. Troponin I is elevated
c. Myoglobin is elevated
d. The levels of cardiac markers remain unchanged

286. Which of the following ECG finding is associated with acute myocardial infarction

a. Elevation of S wave
b. Prolonged QT interval
c. Tall T waves with increased amplitude
d. Prolonged PR interval

287. Cardiac Biomarker of Choice for diagnosis of Myocardial infarction 10 days after the initial event:

a. Troponins
b. CK-MB
c. Myoglobin
d. LDH

288. Cardiac Biomarker of Choice for diagnosis of Re-infarction 5 days after the initial ischemic event is:

a. Troponins
b. CK-MB
c. Myoglobin
d. LDH

289. Reperfusion is believed to restore contractile function of:

a. Stunned Myocardium
b. Hibernating Myocardium
c. Ischemic non-viable myocardium
d. non-Ischemic viable myocardium

290. Agent of first choice in an acute attack of Prinzmetal's angina is:

a. Diltiazem
b. Nitrates
c. Propranolol
d. Verapamil

291. 40 years old male patient presents to the Emergency department with central chest pain for 2 hours. The ECG shows ST segment depression and cardiac troponins are elevated. Patient has a positive history of previous PCI 3 months back. He is administered Aspirin, Clopidogrel, Nitrates and LMWH, in the Emergency Department and shifted to the coronary care unit. The best recommended course of further action should include

a. Immediate Revascularization with Thrombolytics
b. Early Revascularization with PCI
c. Continue conservative management and monitoring of cardiac enzymes and ECG
d. Continue conservation management and plan for delayed Revascularization procedure after patient is discharged

292. The treatment of choice for a patient of Acute ST Elevation Myocardial infarction with cardiogenic shock is-

a. Intra-aortic balloon pump (IABP) and PCI
b. PCI with Angioplasty
c. Thrombolysis
d. Intraaortic balloon pump (IABP)

293. A 40-years-old male, chronic smoker comes with acute epigastric discomfort, for past one hour. ECG showing ST segment elevation in inferior leads. What is the immediate intervention?

a. Aspirin
b. Thrombolytic therapy
c. IV pantoprazole
d. Beta blockers

294. All of the following drugs are used in the management of acute myocardial infarction, except:

a. Tissue Plasminogen activator
b. Intravenous beta blockers
c. Salicylic acid
d. Calcium channel blockers

295. A patient with acute inferior wall myocardial infarction has developed shock. Which of the following is the most likely cause of shock

a. Cardiac rupture
b. Interventricular septal perforation
c. Papillary muscle rupture
d. Right ventricular infarction

296. A previously healthy 58 years old man is admitted to the hospital because of an acute inferior myocardial infarction. Within several hours, he becomes oliguric and hypotensive (blood pressure is 90/60 mmHg). Insertion of a pulmonary artery (Swan-Ganz) catheter reveals the following pressures: pulmonary capillary wedge-4 mm Hg:; pulmonary artery-22/4 mmhg: and mean right atrial- 11 mmHg. This man would best be treated with:

a. Fluids
b. Digoxin
c. Dopamine
d. Intraaortic balloon counter pulsation

297. In a patient of acute inferior wall MI; best modality of treatment is:

a. IV fluids
b. Digoxin
c. Diuretics
d. Vasodilators

281. d	282. b	283. b	284. b	285. d	286. a	287. a	288. b	289. b	290. b	291. c
292. b	293. b	294. d	295. d	296. a	297. a					

298. In a patient with myocardial infarction the valvular lesion commonly seen in:

a. Aortic stenosis
b. Mitral regurgitation
c. Aortic regurgitation
d. Septal defect

299. Which is incorrect about Dressler syndrome?

a. Post MI pericarditis
b. Post MI pleuritic
c. Autoimmune
d. Treatment with steroids is necessary

300. Which of the following tests is used to detect reversible myocardial ischemia

a. Angiography
b. Thallium scan
c. MUGA
d. Resting Echocardiography

Section F : Heart Failure :

301. Left ventricular Hypertrophy is caused by all, Except-

a. M.S (Mitral stenosis)
b. A.S (Aortic Stenosis)
c. M.R (Mitral Regurgitation)
d. A.R (Aortic Regurgitation)

302. Positive Hepatojugular Reflux is found in all of the following conditions, except:

a. Tricuspid Regurgitation
b. Precapillary Pulmonary Hypertension
c. Right Ventricular infarction
d. Decreased After-load

303. A patient comes with sudden respiratory distress. On examination, bilateral basal crepts are present over chest suggestive of pulmonary edema. Alveolar wedge pressure is normal. The likely cause is-

a. Narcotic overdose
b. Congestive heart failure
c. Myocardial infarction
d. Cardiogenic shock

304. Assays of which of the following biomarkers is most commonly used in the diagnosis of Heart failure

a. Brain Natriuretic Peptide (BNP)
b. Atrial Natriuretic Peptide (ANP)
c. Endothelin-1 (ET-1)
d. Adrenomedullin

305. All of the following are used in the initial management of acute life threatening cardiogenic pulmonary edema, except:

a. Digoxin
b. Morphine
c. Furosemide
d. Positive Pressure Ventilation

306. All of the following are true about starting beta-blocker therapy in cases of CHF, Except

a. They should be initiated at the effective doses
b. The should be gradually increased over weeks
c. Special precautions should be taken NYHA class III & IV
d. Carvedilol and Metoprolol are the preferred drugs

307. Treatment of choice for patients with Congestive Heart Failure and an ejection fraction of <40 percent is:

a. ACE + Beta Blocker
b. ACE-I + Diuretic
c. ACE-I + ARB
d. ACE-I + CCB

308. All of the following medications have shown to lower mortality in patients with CHF, Except:

a. ACE-Inhibitors
b. Beta Blockers
c. Calcium Channel blockers
d. Spironolactone

298. b	299. d	300. b	301. a	302. d	303. a	304. a	305. a	306.	307. a	308. c

Section A. Clinical Examination:

151. D. HOCM. In HOCM, there is reverse pulsus paradoxus.

Pulsus paradoxus: exaggerated reduction in the strength of the arterial pulse during normal inspiration (N) is < 10 mm Hg systolic pressure. The causes include:

- Pericardial tamponade
- Severe COPD/ Asthma
- SVC obstruction
- Constrictive pericarditis (<1/3 pts)
- Hypovolumic shock
- Pulmonary embolism

Reverse pulsus paradoxus: an inspiratory rise in arterial pressure.

- HOCM, AV dissociation, IPPV

152. C. Cardiac tamponade

Pulsus alternans is a physical finding with arterial pulse waveform showing alternating strong and weak beats.[1] It is almost always indicative of left ventricular systolic impairment, and carries a poor prognosis.

Pathophysiology

The mechanism of pulsus alternans was referred to Starling's law of the heart.[2] The ejection fraction will decrease significantly in cases of left ventricular dysfunction, which is the most important cause of pulsus alternans, causing reduction in stroke volume, and this reduction results in an increase in the end-diastolic volume. As explained by Starling's law, during the next cycle of systolic phase, the myocardial muscle will be stretched more than usual and causes an increase in myocardial contraction, this in turn results in a stronger systolic pulse.

The most common cause of pulsus alternans is Left ventricular failure, other causes include:

- Asthma
- Cardiac tamponade
- Meadows syndrome
- Premature ventricular contraction
- Severe aortic regurgitation

153. D. Rhythm is regular in Pulsus bigeminus.

Pulsus bigeminus is a cardiovascular phenomenon characterized by groups of two heartbeats close together followed by a longer pause. The second pulse is weaker than the first. The smaller beat is palpated as either a missing or an extra beat, and on EKG resembles a PVC

This phenomenon can be a sign of hypertrophic obstructive cardiomyopathy or of many other types of heart disease (see list below).

Causes Include:

1. Electrolyte imbalance e.g. Hypo or hyperkalemia
2. Hypothyroidism
3. Betablocker therapy
4. Digoxin
5. Myocardial Infarction
6. Destruction or degeneration of the cardiac conduction system or heart muscle cells
7. Infection

A doctor can discriminate pulsus bigeminus from pulsus alternans by auscultating the heart.

154. D MS.

Tapping apex impulse is seen in normal patients and MS.

155. C. Systolic – diastolic B.P.

156. D Congestive heart failure is usually associated with a low pulse pressure.

examples of WIDENING pulse pressure causes)

- Anemia
- Aortic dissection
- Atherosclerosis
- Arteriovenous fistula
- Chronic aortic regurgitation
- Aortic root aneurysm[8]
- Aortic root dilation[9]
- Beri beri
- Distributive shock
- Endocarditis
- Fever
- Heart block
- Hyperkinetic heart syndrome
- Increased intracranial pressure
- Patent ductus arteriosus
- Pregnancy
- Thyrotoxicosis

157. C. Atrial fibrillation has Pulse deficit more than 10/min due to the high atrial rate.

In a patient with irregular pulse, the pulse deficit helps differentiate between VPS and A.fibrillation.

158. B. Heart block has no deficit

159. D. Radial pulse is always less than the ventricular rate leading to deficit.

160. A. Cannon 'a' wave is seen in cases with AV dissociation viz CHB and Ventricular tachycardia.

Slow y descent is a feature of Tricuspid stenosis

Giant "'a' wave seen in tricuspidstenosis

In SVC obstruction, JVP is elevated with absent pulsations.

161. A. Atrial fibrillation

162. B. JVP correlates with events of the right atrium

JVP waveform	RA events
'a' wave	Right atrial contraction
'c' wave	Contraction of RV causing bulging of tricuspid valve
'x' descent	Right atrial relaxation
'v' wave	Filling of right atrium from the vena cava
'y' descent	Emptying of the RA into the RV

163. C. Left 3 rd Intercostal space

Refer to Areas of Auscultation

164. A. 2nd left intercostal space

165. A. Short PR

the PR interval represents part of diastole, meaning a longer PR interval would result in a longer diastolic filling time. As the LV fills, the pressure gradually increases. This gradual increase in pressure causes the mitral valve leaflets to slowly drift together. Therefore, when ventricular systole occurs in the setting of a long PR interval, the leaflets will be separated by a smaller distance, and the S1 sound will be softer. The converse is also true. A short PR interval results in an accentuated S1, as the mitral valve leaflets will be further apart at the onset of ventricular systole.

166. C. LBBB

Causes of Wide S2 split (A2àP2)	Causes of Paradoxical split (P2àA2)
RBBB	LBBB (Acute MI)
Pulmonary hypertension	Systemic hypertension
RVOT obstruction	LVOT obstruction
Left to Right shunts i.e. ASD, VSD	Single chamber pacemaker

167. C. ASD

168. B. MS. LV is the protected chamber in Mitral stenosis.

a third heart sound also called a protodiastolic gallop, ventricular gallop, or informally the "Kentucky" gallop.

169. A. S3 occurs due to rapid filling of partially filled ventricles during ventricular diastole

S4 occurs during rapid filling during atrial systole.

170. C. heard during late ventricular filling which occurs due to atrial contraction.

S4 is a low pitched sound inaudible to the unaided ear.

171. B. In Rheumatic MR, there is a dilated LV.

Other causes of Absent S4 : Atrial fibrillation, Unhealthy Atria, VPC.

172. A. Opening snap is produced by the opening of the Mitral valve.

It can be physiological in young, asymptomatic patients. it can be seen in MS.

It is early diastolic sound. Only high pitched diastolic sound.

173. A. MVP

MVP is characterized by mid-systolic click followed by late systolic murmur. Hence also referred to as 'click-murmur' syndrome.

174. D. Aortic stenosis is characterized by ejection systolic (mid systolic) murmur.

175. D. Pansystolc murmur.

Early diastolic murmur (lower pitched and shorter than in chronic AR) may be present. An Austin-Flint murmur, which is caused by the regurgitant flow causing vibration of the mitral apparatus, is lower pitched and short in duration. The decrescendo diastolic murmur is heard best with the patient leaning forward in full expiration in a quiet room. . A functional systolic flow murmur may also be present because of increased stroke volume, although concurrent aortic stenosis may also be present.

176. C. Associated with AR is false.

In acute rheumatic fever, mitral valvulitis can cause MR and lead to Carey coomb's murmur.

177. A. A-V Block

Rytand'smurmur is heard in complete heart block when atrial contraction coincides with the early rapid filling phase of the ventricle as a short mid diastolic murmur.

178. A. CHB can cause mid diastolic murmur. (Rytand's murmur)

179. A. Ventricular septal defect with aortic regurgitation

Causes of continuous murmur:
PDA,
Ruptured sinus of Valsalva
Aorto-pulmonary window
AV fistula
Vascular tumours (hemangioma)
Venous hum (venous engorgement of breasts during pregnancy and lactation)

Section B. ECG and Arrythmias

180. C. -30 to +110°

0 Normal axis is -30 to +100 degrees.

181. A. Left Axis deviation ranges

Left Axis deviation ranges from -30 to -90 degrees.

182. D. Negative in Lead I and Positive in Lead aVF

183. D. The orientation of Lead aVR is opposite of the normal electrical conduction in the heart.

184. A. V1

185. A. Atrial fibrillation has ineffective atrial contraction leading to absent p wave.

186. C. Atrial flutter shows saw-tooth appearance and regular rhythm indicated fixed block.

187. A. Notched or bifid p wave indicated LAE. This is seen commonly in MS.

188. D. LBBB has qRS duration more than 120 ms.

189. D. LAHB

190. A. BBB

191. B. Sick sinus syndrome

Low voltage on the ECG is defined as a peak-to-peak QRS amplitude of less than 5 millimeters in the limb leads and/or less than 10 millimeters in the precordial leads.

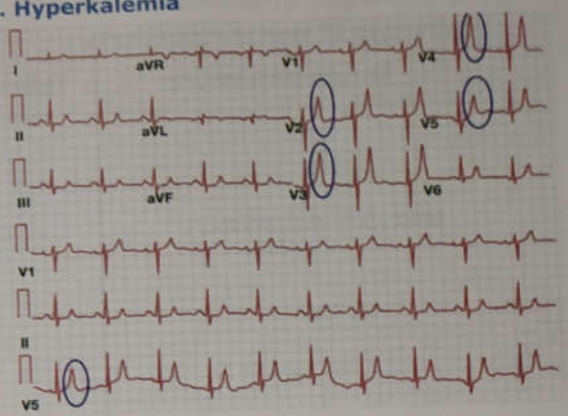
Amongst the various causes of low voltage ECG the most important and significant are those related to the heart e.g. myocardial infarction, pericardial effusion. It is pericardial effusion (with or without tamponade) which is the most important statistically significant cause of low voltage QRS complex.

192. B. Cardiac Amyloidosis

A low voltage electrocardiogram result can be caused by a problem in the heart's ability to generate electricity or can be due to the presence of fluid or air in the chest between the electrodes and the heart. Chronic heart diseases, such as cardiomyopathy, can cause low voltage ECGs with LVH on ECHO.

193. C. By Voltage criteria

194. A. Hyperkalemia



195. A. Hypothermia

QT prolongation is found in electrolyte imbalance, drug toxicity and congenital syndromes.

Jervell and Lange-Nielsen syndrome [edit]

Jervell and Lange-Nielsen syndrome (JLNS) is an autosomal-recessive form of LQTS with associated congenital deafness. It is caused specifically by mutation of the KCNE1 and KCNQ1 genes.

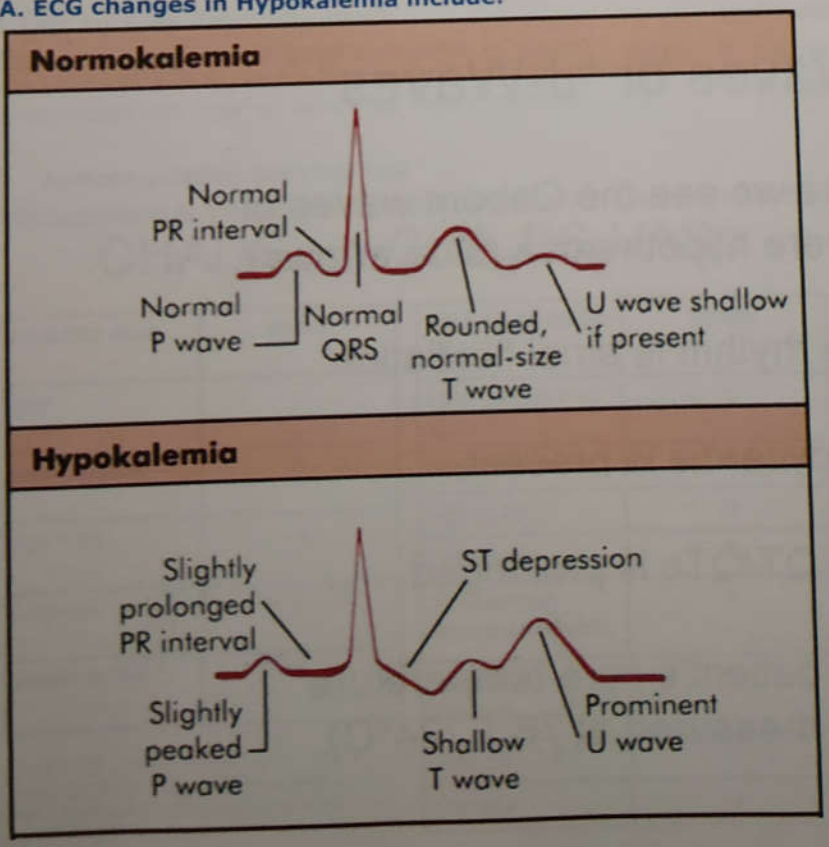
In untreated individuals with JLNS, about 50% die by the age of 15 years due to ventricular arrhythmias.

Romano-Ward syndrome[edit]

Romano-Ward syndrome is an autosomal-dominant form of LQTS not associated with deafness.

196. D. Hyperkalemia

197. A. ECG changes in Hypokalemia include:



198. **B. Prolonged QT interval**

Prolonged QT seen in Hypokalemia

Serum potassium	Typical ECG appearance	Possible ECG abnormalities
Mild (5.5–6.5 mEq/L)		Peaked T waves Prolonged PR segment
Moderate (6.5–8.0 mEq/L)		Loss of P wave Prolonged QRS complex ST-segment elevation Ectopic beats and escape rhythms
Severe (>8.0 mEq/L)		Progressive widening of QRS complex Sine wave Ventricular fibrillation Asystole Axis deviations Bundle branch blocks Fascicular blocks

EpoMedicine

199. **B. Junctional tachycardia**

Digitalis prolongs AV nodal conduction.

200. **B. Hypothermia**

Osborne Waves or "J-Waves"

Here we see the Osborn waves of severe hypothermia (blue arrows).

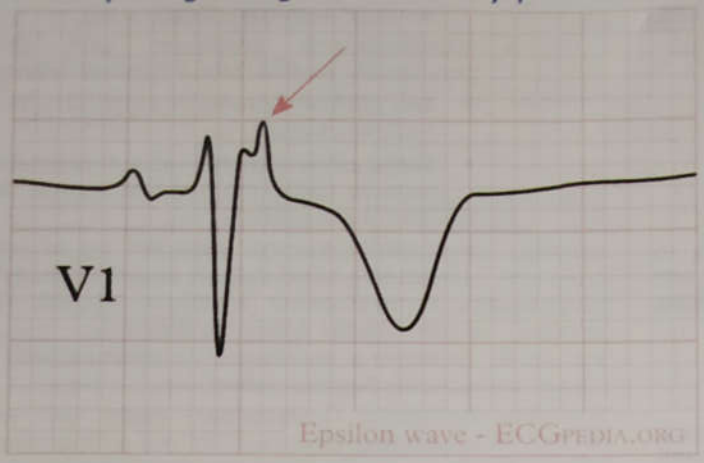
The rhythm is atrial fibrillation.

Bradycardia is present.

The QT/QTc is prolonged.

The patient's core temperature was measured at 76°F (24°C).

201. D. Arrhythmogenic right ventricular dysplasia



202. D. Ashman Phenomenon

Ashman phenomenon is an aberrant ventricular conduction due to a change in QRS cycle length. In 1947, Gouaux and Ashman reported that in atrial fibrillation, when a relatively long cycle was followed by a relatively short cycle, the beat with a short cycle often has right bundle-branch block (RBBB) morphology.

203. A. Lev's Disease

Lev's disease (or Lenegre-Lev syndrome) is an acquired complete heart block due to idiopathic fibrosis and calcification of the electrical conduction system of the heart. Lev's disease is most commonly seen in the elderly, and is often described as senile degeneration of the conduction system.

204. B. Left Anterior Fascicular block

Brugada syndrome is a genetic disorder in which the electrical activity within the heart is abnormal. It increases the risk of abnormal heart rhythms and sudden cardiac death. Those affected may have episodes of passing out. The abnormal heart rhythms seen in those with Brugada syndrome often occur at rest and may be triggered by a fever. About a quarter of those with Brugada syndrome have a family member who also has the condition. Some cases may be due to a new genetic mutation.

205. D. Atrial fibrillation

Holiday heart syndrome is an irregular heartbeat pattern presented in individuals who are otherwise healthy. Coined in 1978 the term is defined as "abnormal heart rhythms sometimes following excessive alcohol consumption; usually temporary". Most common arrythmia associated is Atrial fibrillation. It can also cause PSVT or ventricular tachycardia.

206. D. Clopidogrel

Clopidogrel is an anti=platelet.

207. C. Anticoagulation not required

Anticoagulation is indiated in cases of atrial fibrillation having CHADVASc score >=2.

$$CHADS_2 \rightarrow CHA_2DS_2VASc$$

CHADS2 Risk	Score
CHF	1
Hypertension	1
Age > 75	1
Diabetes	1
Stroke or TIA	2

CHA2DS2-VASc Risk	Score
CHF or LVEF ≤ 40%	1
Hypertension	1
Age ≥ 75	2
Diabetes	1
Stroke/TIA/ Thromboembolism	2
Vascular Disease	1
Age 65 - 74	1
Female	1

From ESC AF Guidelines http://escardio.org/guidelines-surveys/esc-guidelines/GuidelinesDocuments/guidelines-afib-FT.pdf

208. D. Adenosine

209. C. Verapamil

210. D. Relieved by carotid sinus massage

211. B. Myocardial Reperfusion

212. C. acidosis

213. A. Left free wall

The location of the accessory pathways (APs), in descending order of frequency, is (1) 53%, the left free wall, (2) 36%, posteroseptal, (3) 8%, right free wall, and (4) 3%, anteroseptal.

214. A. Orthodromic AV re-entry

215. A. More common in females

WPW syndrome has been found to be more frequent in males. One study documented a male-to-female ratio of approximately 2:1

216. A. Verapamil.

The usual rate-slowing drugs used in AF are not effective, and digoxin and the nondihydropyridine calcium channel blockers (eg, verapamil, diltiazem) are contraindicated because they may increase the ventricular rate and cause ventricular fibrillation.

217. A. Constant PR interval

Mobitz Type 1 block is characterized by Wenckebach's phenomenon. There is progressive PR prolongation with subsequent missing of the beat.

218. D. No constant Relationship between P wave and QRS complex

Absence of relationship between P and QRS complex is termed AV dissociation and seen in complete heart block.

219. D. Diltiazem

Diltiazem is a non-di-hydro-pyridine group of calcium channel blocker leading to bradycardia

SECTION C: Rheumatic Fever, Infective Endocarditis & Valvular Heart Disease

220. A. MR

221. D. Positive Rheumatoid Factor

Diagnosis of infective endocarditis is possible if one of the following combinations of clinical criteria are met:

- 1 major and 1 minor criteria
- 3 minor criteria are fulfilled

Major criteria

1. Positive blood culture with typical IE microorganism, defined as one of the following:[23]
- Typical microorganism consistent with IE from 2 separate blood cultures, as noted below:
  - Viridans-group streptococci, or
  - Streptococcus bovis including nutritional variant strains, or
  - HACEK group, or
  - Staphylococcus aureus, or
  - Community-acquired Enterococci, in the absence of a primary focus
- Microorganisms consistent with IE from persistently positive blood cultures defined as:
  - Two positive cultures of blood samples drawn >12 hours apart, or
  - Three or a majority of ≥4 separate blood cultures (with first and last sample drawn at least 1 hour apart)
  - Coxiella burnetii detected by at least one positive blood culture or IgG antibodytiter for Q fever phase 1 antigen >1:800. This was previously a minor criterion

2. Evidence of endocardial involvement with positive echocardiogram defined as
- Oscillating intracardiac mass on valve or supporting structures, in the path of regurgitant jets, or on implanted material in the absence of an alternative anatomic explanation, or
- Abscess, or
- New partial dehiscence of prosthetic valve or new valvular regurgitation (worsening or changing of preexisting murmur not sufficient)

Minor criteria

1. Predisposing factor: known cardiac lesion, recreational drug injection

Fever >38 °C

2. Vascular phenomena: arterial emboli, pulmonaryinfarcts, Janeway lesions, conjunctivalhemorrhage
4. Immunological phenomena: glomerulonephritis, Osler's nodes, Roth's spots, Rheumatoid factor
5. Microbiologic evidence: Positive blood culture (that doesn't meet a major criterion) or serologic evidence of infection with organism consistent with IE but not satisfying major criterion
6. Positive echocardiogram (that doesn't meet a major criterion) (this criterion has been removed from the modified Duke criteria)

222. A. Mitral stenosis

223. C. Mitral valve prolapse

Mitral valve prolapse is the most common predisposing condition found in young adults and is the predisposing condition in 30% of cases of NVE in this age group

224. D. Tricuspid valve

225. A. Infective Endocarditis

Roth's **spots** are retinal hemorrhages with white or pale centers. The original retinal **spots** identified in 1872 were attributed to nerve-fibres that had burst or exploded. Present-day analysis shows that they can be composed of coagulated fibrin including platelets, focal ischemia, inflammatory infiltrate, infectious organisms, or neoplastic cells. Classical finding in IE.

226. (B)

Within ayear of valve replacement, most common organism is CoNS.

CoNS are gram-positive cocci that divide in irregular "grape-like" clusters and are differentiated from S. aureus by their inability to produce coagulase and coagulate rabbit plasma. E.g. S. epidermidis

(biomaterial-based and prosthetic device infections).

227. B. Staphylococcus Epidermidis

228. D. Coarctation of aorta

All other options have low risk of Infective endocarditis.

229. D. Good prognosis with treatment

Fungal endocarditis is an extremely debilitating disease associated with high morbidity and mortality. Candida spp. are the most common isolated organisms in fungal endocarditis. It is most prevalent in patients who are immunosuppressed and intravenous drug users. Most patients present with constitutional symptoms, which are indistinguishable from bacterial endocarditis, hence a high index of suspicion is required for pursuing diagnosis. Diagnosis of fungal endocarditis can be very challenging: most of the time, blood cultures are negative or take a long time to yield growth. Fungal endocarditis mandates an aggressive treatment strategy. A medical and surgical combined approach is the cornerstone of therapy. It is reasonable to use long-term suppressive **therapy** with antifungals after medical and surgical **treatment** because **fungal endocarditis** has a high relapse rate, as well as protracted delay in response.

230. A. Right ventricular hypertrophy

MS is characterized by peaked 'p'/ p-mitrale indicating LAE. Back pressure through the pulmonary veins leads to Right ventricular hypertrophy.

231. A. Mitral stenosis

232. B. Atrial fibrillation

Atrial fibrillation is the only complication of MS which has no correlation with severity of MS.

The opening snap follows the second heart sound. The sudden tensing of the valve leaflets after they have completed their opening excursion causes an opening snap. In patients with elevated left atrial pressure and hence with severe mitral stenosis, the opening snap occurs closer to the second heart sound." Hence, not C.

Pulsatile liver is a sign of Heart failure. Hence not A.

233. D. Short A2-OS interval

234. B. Duration of murmur

235. A. Mitral valve repair or replacement

Individuals with mitral valve prolapse, particularly those without symptoms, often require no treatment.[16] Those with mitral valve prolapse and symptoms of dysautonomia (palpitations, chest pain) may benefit from beta-blockers (e.g., propranolol). Patients with prior stroke and/or atrial fibrillation may require blood thinners, such as aspirin or warfarin. In rare instances when mitral valve prolapse is associated with severe mitral regurgitation, mitral valve repair or surgical replacement may be necessary. Mitral valve repair is generally considered preferable to replacement. Current ACC/AHA guidelines promote repair of mitral valve in patients before symptoms of heart failure develop. Symptomatic patients, those with evidence of diminished left ventricular function, or those with left ventricular dilatation need urgent attention.

236. B. Mostly symptomatic.

"Mitral valve prolapse (MVP) is the most common valvular abnormality, affecting approximately 2-3% of the population in the United States. MVP usually has a benign course, but it occasionally leads to serious complications, including clinically significant mitral regurgitation (MR), infective endocarditis, sudden cardiac death, and cerebrovascular ischemic events.

However, majority are asymptomatic."

237. C. Echocardiography

Echocardiography can confirm MVP if the excursion of the mitral valve leaflet is more than 2mm above the annulus.

238. C. Aortic stenosis

As presents with classical triad of Angina, syncope and dyspnoea

239. A. Aortic stenosis

As can cause severe LVOT obstruction leading to risk of SCD.

240. A. Late systolic ejection click

Late peaking of murmur indicates severe AS. Others indicate chronicity of disease.

The second heart sound (A2) tends to become decreased and softer as the aortic stenosis becomes more severe[15] This is a result of the increasing calcification of the valve preventing it from "snapping" shut and producing a sharp, loud sound.

241. D. Delayed peak of systolic murmur

242. B. Coarctation of Aorta

Coarctation is supra-valvular cause of LVOT obstruction.

243. B. Mitral Regurgitation

244. B. Acute myocardial infarction

Acute MI can lead to papillary muscle necrosis leading to Acute MR, not AR.

245. A. Acute MI

Acute MI can lead to papillary muscle necrosis leading to Acute MR, not AR.

246. A. Aortic Regurgitation

Duroziez's sign is a sign of **aortic insufficiency**. It consists of an audible diastolic murmur which can be heard over the femoral artery when it is compressed with the bell of a stethoscope

247. B. Dilatation of right ventricle

TR is most commonly due to RV dilatation due to pulmonary hypertension.

248. A. Tricuspid Regurgitation

Carvallo'ssign is a clinical **sign** found in patients with tricuspid regurgitation. The pansystolic murmur found in this condition becomes louder during inspiration; this **sign** enables it to be distinguished from mitral regurgitation.

Section D: Cardiomyopathy & Pericardial diseases

249. A. Dilated cardiomyopathy

Dilated cardiomyopathy is associated with severe loss of systolic function.

250. C. Toxic cardiomyopathy

Toxic (Alcohol) related cardiomyopathy.

Drinking alcohol in large quantities has a toxic effect on the heart. **Alcoholic cardiomyopathy** is a form of a condition in which the heart becomes enlarged and the heart muscle thins (dilated cardiomyopathy) due to **alcohol abuse** (also called toxic cardiomyopathy)

251. A. Alcohol

252. A. Dilated cardiomyopathy

Takotsubo cardiomyopathy, also known as **stress cardiomyopathy**, is a type of non-ischemic cardiomyopathy in which there is a sudden temporary weakening of the muscular portion of the heart. This weakening may be triggered by emotional stress, such as the death of a loved one, a break-up, rejection from a partner or constant anxiety.

253. D. HOCM

254. D. Pathophysiological Systolic Dysfunction

HOCM is characterized Asymmetrical Septal Hypertrophy, Systolic Anterior Movement of Mitral valve leading to a dynamic subvalvular LVOT obstruction with beat-to-beat variability.

255. B. Murmur radiating to neck

The murmur is a high-pitched, crescendo-decrescendo, midsystolic murmur heard best at the left lower sternal border. The murmur of HOCM does not radiate to the carotids like that of aortic stenosis. The important auscultatory features of HOCM that distinguish it from AS relate to dynamic auscultation. The murmur of HOCM becomes quite loud with Valsalva maneuver. This maneuver effectively acts to decrease left ventricular filling, which results in worsened left ventricular outflow tract obstruction in patients with HOCM, making the murmur louder. Standing from the squatting position has a similar effect; this results in sudden pooling of blood in the legs, decreasing venous return. In patients with aortic valvular stenosis, the murmur will get softer with Valsalva or standing from squatting because less blood is being ejected through the aortic valve. Rapid squatting from a standing position forces increased venous return and would have the opposite effect of Valsalva or rapid standing.

HOCM also shows a brisk carotid upstroke due to little resistance in early systole.

256. C. Digoxin

Nifedipine type-calcium channel blockers, ACEIs, Nitrates and positive inotropes are contraindicated in hypertrophic cardiomyopathy as the increase cardiac output and worsen the features of ventricular outflow obstruction.

257. C. Proponalol

258. A. Digitalis is useful

Digitalis is contraindicated in HCM

Positive inotropes are contraindicated in hypertrophic cardiomyopathy as the increase cardiac output and worsen the features of ventricular outflow obstruction.

259. A. Kussmaul's sign

Kussmaul's sign is absent (Rare) in Tamponade.

Tamponade is the most common cause of Pulsus paradoxus.

Electrical alternans is an electrocardiographic phenomenon of alternation of QRS complex amplitude or axis between beats and a possible wandering base-line. It is seen in cardiac tamponade and severe pericardial effusion and is thought to be related to changes in the ventricular electrical axis due to fluid in the pericardium, as the heart essentially wobbles in the fluid filled pericardial sac.

Due to increased pericardial pressure, there is Righ ventricular diastolic collapse on ECHO.

260. B. Cardiac tamponade

Cardiac tamponade is characterized by Beck's triad which includes low arterial blood pressure, distended neck veins, and distant, muffled heart sounds.

261. B. Urgent pericardial tap

Post-traumatic – hemorhage into pericardial cavity can produce tamponade which can be relieved by urgent pericardial tap.

262. C. Cardiac tamponade

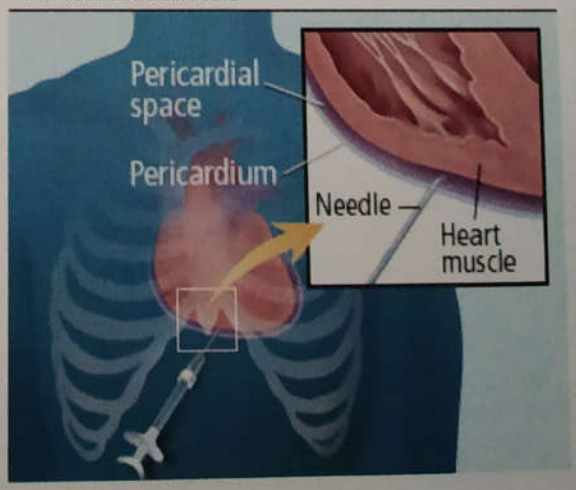
Refer to explanation Q.146.

263. A. Pericardial Effusion

Auenbrugger sign: An obsolete term that formerly dignified epigastric bulging as a **sign** of pericardial effusion.

264. A. Sub-xiphoid

Pericardiocentesis



265. D. Acute rheumatic fever

Causes of constrictive pericarditis include:

- Tuberculosis (MOST COMMON)
- Incomplete drainage of purulentpericarditis
- Fungal and parasiticinfections
- Chronic pericarditis
- Postviral pericarditis
- Postsurgical
- Following MI, post-myocardial infarction
- In association with pulmonary asbestosis

Section E: Hypertension & Coronary Heart Disease

266. A. Essential Hypertension

267. A. Gender

268. A. Renal artery stenosis.

Causes of Hyperetsnion with hypoalemia (in order of frequency):

1. Essential hypertension with diuretic use
2. Primary aldosteronism(CONN'S syndrome)
3. Cushing's syndrome
4. Pheochromocytoma
5. Renal vascular disease
6. Malignant hypertension

In primary Hyperaldosteronism (adrenal disease) renin levels will be low. Hence not the answer.

269. B. Diet modification and exercise

As per the new 2017 ACC guidelines for Hypertension, pharmacological therapy is indicated only if hypertension is symptomatic or has a risk of estimated risk of atherosclerosis more than 10%.

270. A. Beta Blockers

Beta blockers reduce the demand of the myocardium, making them the best choice.

271. A. Lisinopril

272. C. Fibro muscular dysplasia

The most common cause of Renal artery steosis before 30 years of age is Fibromuscular dysplasia. In age group >50 years, atherosclerosis is most common cause.

273. A. Bone morphogenetic protein receptor II

274. A. Acute aortic dissection.

Classical history of radiation associated with pleural effusion is diagnostic.

275. C. Homocysteine

Homocysteine is a non-proteinogenic α-amino acid. It is a homologue of the amino acid cysteine, differing by an additional methylene bridge (-CH2-). It is biosynthesized from methionine by the removal of its terminal Cεmethyl group. Homocysteine can be recycled into methionine or converted into cysteine with the aid of certain B-vitamins. Defeiciency of B6,B12 and folate have been associated with hyperhomocysteinemia.

A high level of homocysteine in the blood (hyperhomocysteinemia) makes a person more prone to endothelial cell injury, which leads to inflammation in the blood vessels, which in turn may lead to atherogenesis, which can result in ischemic injury. Hyperhomocysteinemia is therefore a possible risk factor for coronary artery disease.

Hyperhomocysteinemia has been correlated with the occurrence of blood clots, heart attacks and strokes, though it is unclear whether hyperhomocysteinemia is an independent risk factor for these conditions. Hyperhomocysteinemia has also been associated with early pregnancy loss[4] and with neural tube defects.[5]

276. B. Lipoprotein A

Cholesterol and triglycerides, being nonpolar lipid substances (insoluble in water), need to be transported in the plasma associated with various lipoprotein particles. Plasma lipoproteins are separated by hydrated density; electrophretic mobility; size; and their relative content of cholesterol, triglycerides, and protein into five major classes: chylomicrons, very-low-density lipoproteins (VLDL), intermediate-density lipoproteins (IDL), low-density lipoproteins (LDL), and high-density lipoproteins (HDL).

Genetic testing confirms that high levels of a type of cholesterol known as lipoprotein(a) are associated with an increased risk for heart attacks.

Lipoprotein(a) [Lp(a)] consists of an LDL-like particle and the specific apolipoprotein(a) [apo(a)], which is bound covalently to the apoB of the LDL-like particle. Lp(a) plasma concentrations are highly heritable and mainly controlled by the apolipoprotein(a) gene [LPA] located on chromosome 6q26-27.

Lp(a) contributes to the process of atherogenesis. Because of its structural similarity to plasminogen and tissue plasminogen activator, competitive inhibition leads to reduced fibrinolysis, and as a result of the stimulation of secretion of plasminogen activator inhibitor 1, Lp(a) leads to thrombogenesis.[21][22][23] It also may enhance coagulation by inhibiting the function of tissue factor pathway inhibitor.[24]Lp(a) carries cholesterol and binds atherogenic proinflammatory oxidized phospholipids as a preferential carrier of oxidized phospholipids in human plasma,[25] which attract inflammatory cells to vessel walls and leads to smooth muscle cell proliferation.

277. C. Chlamydia Pneumonie

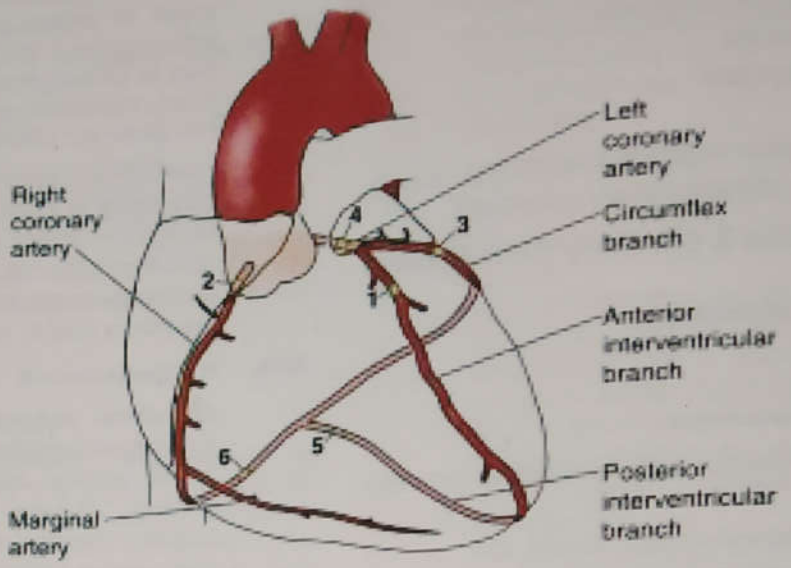
Helicobacter pylori and Cytomegalovirus are the micro-organisms implicated with atherogenesis leading to risk of coronary artery disease.

278. C. Cigarette smoking.

The major modifiable risk factors include smoking, high blood pressure, high blood cholesterol, insufficient physical activity, obesity, diabetes, poor nutrition, and excessive intake of alcohol.
The most important non-modifiable risk factor is ethnicity followed by age of the patient.

279. D. Omega 3 polysaturated fatty acids

280. D. Marginal artery



1- 6 = Sites of coronary artery occlusion, in order of frequency

281. D. Inferior wall of Left ventricle (in order of frequency)

Location of Infarction

Location of MI	Primary siteof occlusion
Inferior MI	RCA (80-90%), LCX (10-20%)
Inferolateral MI	LCX
Posterior MI	RCA/ LCX
Anterior MI	LAD
Anterior septal MI	LAD
Lateral MI	LAD/LCX
Right ventricular	RCA

282. B. Left ventricle

283. D. Lead V_5

Myocardial ischemia is a dreaded complication during anaesthesis. Correct lead selection is particularly important and a full 12-lead ECG, although often impractical intraoperatively, remains the "gold standard" if accurate electrical diagnosis is required. For the high risk patient, intraoperative monitoring of leads V5 and V4 and II (in that order of priority) is likely to optimise the chances of ischaemia detection, but requires a more complex system than the usual 3 lead ECG in common use.

284. B. Unstable angina

Wellens syndrome: symmetrical negative T wave in pre-cordial leads without R loss of R waves can regularly be observed in early anterior ischemia. Many patients with Wellens syndrome / sign turn out to have a critical proximal LAD stenosis.

285. D. The levels of cardiac markers remain unchanged

In angina, the cardiac markers of infarction remain normal.

286. A. Elevation of S wave

287. A. Troponins

Troponins return to baseline 7 days post myocardial infarction. Hence, in case of suspected re-infarction post 7 days, the best biomarker is Troponins.

288. B. CK-MB

CP-MB returns to baseline within 72 hours of re-infarction. Hence the best biomarker in suspected re-infarction between 3-7 days. Post 7 days, Troponins are the best.

289. B. Hibernating myocardium

290. B. Nitrates

In all angina, the acute attack is best managed by Nitrates.

291. C. Continue conservative management and monitoring of cardiac enzymes and ECG

NSTEMI management guidelines.

Conservative management of Acute coronary syndrome should be initiated. Patients should undergo continuous ECG monitoring during their hospital stay, because sudden, unexpected ventricular fibrillation is the major preventable cause of death in this early period. Furthermore, monitoring for recurrence of ST-segment shifts provides useful diagnostic and prognostic information.

292. B. PCI with Angioplasty

PCI with angioplasty offers best success in revascularisation.

293. B. Thrombolytic therapy

Acute STEMI within window period (12hours) having no contra-indications must undergo PCI / Thrombolysis.

294. D. Calcium channel blockers

CCB are contraindicated because of their negative inotrophic action which may precipitate hypotension.

295. D Right ventricular infarction

Inferior wall MI is most commonly due to RCA occlusion. The same also supplies the right ventricle.

296. A. Fluids

IV Fluids will improve preload and improve right ventricular function.

297. A. IV Fluids

298. B. Mitral regurgitation

MR due to papillary muscle dysfunction.

299. D. Treatment with steroids is necessary

NSAIDS are sufficienct.

300. B. Thallium scan

Section F: Heart Failure

301. A. M.S (Mitral stenosis)

302. D. Decreased After-load

Positive Hepatojugular reflex indicates right heart failure which can be seen with tricuspid disease, Pulmonary arterial hypertension (pre-capillary cause of pulmonary hypertension) and RV infarction.

303. A. Narcotic overdose

Alveolar wedge pressure (also called pulmonary capillary wedge pressure) is considered the gold standard for determining the cause of acute pulmonary edema; this is likely to be present at a PCWP of >20mmHg. It has also been used to diagnose severity of left ventricular failure and mitral stenosis,[6] given that elevated pulmonary capillary wedge pressure strongly suggests failure of left ventricular output.[7]

Traditionally, it was believed that pulmonary edema with normal PWP suggested a diagnosis of acute respiratory distress syndrome (ARDS) or non cardiogenic pulmonary edema (as in opiate poisoning).

304. A. Brain Natriuretic Peptide (BNP)

BNP is secreted by the ventricular cardiomyocytes in response to strain/strectch of the ventricles. Hence, elevated levels of BNP are specific for diagnosis of Heart failure. It also offers prognostic value as levels above 100 indicate severe disease with poor outcome.

305. A. Digoxin

Digoxin is only indicated in HF with atrial fibrillation to reduce hospitalization. It has noorrole in acute management of HF.

306.

307. A ACE + Beta Blocker

In patients with **heart failure** with reduced ejectio fraction (HFrEF), randomized trials have show that chronic blockade of **beta** adrenergic receptor improves symptoms, reduces hospitalization, an enhances survival even though acute effects ar often detrimental. ACEI therapy is indicated t prevent ventricular remodeling in HF.

Diuretics are included in presence of active feature of failure/fluid overload symptoms.

308. C. Calcium Channel blockers

CCB are contraindicated in HF due to their negati inotroph action which can precipitate hypotension.

Section 1: Renal Physiology & Assessment methods

309. Serum C3 persistently low in the following, except:
a. Post streptococcal glomerulonephritis
b. Membranoproliferative glomerulonephritis
c. Lupus nephritis
d. IgA nephropathy

310. The main site of bicarbonate reabsorption is:
a. Proximal convoluted tubule
b. Distal convoluted tubule
c. Cortical collection duct
d. Medullary collection duct

311. In which of the following conditions bilateral contracted kidneys are characteristically seen?
a. Amyloidosis
b. Diabetes. mellitus
c. Rapidly progressive (crescentic) glomerulonephrtis
d. Benign nephrosclerosis

312. Normal sized to enlarged kidneys in a patient with chronic renal failure is indicative of:
a. Benign nephrosclrosis
b. Chronicglomerululonephritis
c. Chronic interstitial nephritis
d. Primary amyloidosis

313. All of the following are associated with low complement levels except:
a. Lupus nephritis
b. Mesangio capillary glomerulonephritis
c. Diarrhea-associated hemolytic uremic syndrome
d. Post-infections glomerulonephritis.

314. Urinalysis shows RBC casts. Likely source is:
a. Kidney b. Ureter
c. Bladder d. Urethra

315. The most common Bone disease in CKI
a. Osteoporosis
b. Osteomalacia
c. Adynamic Bone Disease
d. Ostietis cystica fibrosa

316. The most common form of Anaemia in CKI
a. Normochromic b. Microcytic
c. Macrocytic d. Hemolytic

317. Anemia of advanced renal insufficiency is best treated by EPO injection. The causes of failure of EPO therapy include:
a. Non-Compliance
b. Untreated Iron deficiency
c. Inadequate EPO dosage
d. All of the above

318. A 44years old woman with Type 1 DM has not attended the diabetic clinic for 5 years. Her HbA1c is 10.1%. Examination shows no abnormality. Her Hb is 9.0g/dl, PCV 28%, MCV 94mcm³. A blood smear shows normocytic, normochromic anaemia. Which of the following is the most likely cause?
a. Acute blood loss
b. Chronic lymphocytic leukaemia
c. EPO deficiency
d. Sideroblastic anaemia

319. The most preferred test for detection of Microalbuminuria
a. 24 hour urinary Albumin
b. Spot urinary Albumin to creatinine ration
c. Dipstick method
d. Renal biopsy

320. A 40-year-old female comes with Loin pain. Urine examination shows 120 rbc/hpf. Urine microscopy revealed dysmorphic RBC's in urine. The site of origin is
a. Kidney b. Ureter
c. Bladder d. Urethra

321. Following parameters indicate "Significant Hematuria" except:
a. Gross Hematuria
b. RBC – 3-100/hpf> 2 occasions
c. RBC > 100/hpf on single occasion
d. None of the above

322. Which of the following matching is incorrect:
a. Hyaline cast – Most benign cast
b. Muddy Brown cast – Acute Tubular necrosis
c. Waxy cast – Interstitial nephritis
d. Granular cast – Tubulointerstitial disease

323. Renal osteodystrophy differs nutritional and genetic forms of osteomalacia in having:
a. Hypocalcaemia b. Hypercalcemia
c. Hypophostaemia d. Hyerphosphatemia

324. Anaemia of advanced renal insufficiency is best treated by:
a. Blood transfusions
b. Recombinanthumanerythropoietin therapy
c. Parenteral iron therapy
d. Folic acid.

325. The most specific marker of renal functionis:
a. Creatinine clearance b. Inulin clearance
c. Blood urea d. Serum creatinine

326. Acute kidney injury can be differentiated from CKI by which of the following:
a. An increased urinary Na+
b. LVH on ECG
c. Hypophosphatemia
d. Preserved CMD on USG scan

309. d	310. a	311. d	312. d	313. c	314. a	315. b	316. a	317. d	318. c	319. a
320. a	321. b	322. c	323. d	324. b	325. b	326. d				

Section 2 : Acute Kidney Injury Including GN

327. A young man develops gross hematuria 3 days after an attack of URTI. Most likely renal pathology is:

a. Acute glomerulonephritis
b. Minimal change disease
c. IgA nephropathy
d. Membranous glomerulonephritis

328. Which of the following is not true about Berger's disease?

a. The pathologic changes are proliferation and usually confined to mesangial cells usually focal and segmental.
b. Hematuria may be gross or microscopic.
c. On immune-fluroescence deposits contain both IgA and IgG maybe found.
d. Absence of associated proteinuria is pathognomonic

329. HIV associated nephropathy is a type of:

a. Membrabousglomemlonephritis
b. Immunotactoidglomerulonopathy
c. Collapsing glomemlopathy
d. Fibrillary glomerulopathy

330. A 60year old woman is admitted with sudden onset of chest pain and is diagnosed with an acute myocardial infarction. Her acute illness is complicated by low blood pressure and poor tissue perfusion for several days. Her serum Urea and Creatinine are noted to be increasing. On day 1 – Urea – 8, Creatinine – 1.16 Day 2 – Urea – 22 Creatinine – 1.40 Day 3- Urea – 30 creatinine -2.0 Granular and Hyaline cast are present in the urine. The renal lesion is most likely to be present in this situation is?

a. Acute Tubular Necrosis
b. Minimal change disease
c. Nodular glomerulosclerosis
d. Renal vein thrombosis.

331. Nephrotic syndrome is the hallmark of the following primary kidney disease, except:

a. Membranous glomerulopathy
b. IgA nephropathy (Berger's disease)
c. Minimal change disease.
d. Focalsegmental glomerulosclerosis

332. A 25-year-old man presented with bilateral loin pain and frank haematuria. His symptoms started 24hours after developing a sore throat and. His blood pressure was 130/80 mm Hg. Urinalysis was positive for blood(4+) and Protein (2+) .Which of the following is expected:

a. Thrombocytopenia
b. Low complement level
c. Positive ANA & ANCA
d. Elevated IgA level.

333. Which of the following statement is not true concerning acute poststreptococcal glomerulonephritis (PSGN)

a. The latent period appears to be longer when PSGN is associated with cutaneous rather than pharyngeal infections
b. Penicillin therapy is without value once renal disease is established
c. Long-term antistreptococcal prophylaxis is indicated after a prior documented case of PSGN
d. Progressive deterioration in renal function is more common in adults than in children with PSGN

334. All of the following statements regarding analgesic nephropathy are true EXCEPT:

a. Caused by interstitial nephritis and renal hypoperfusion
b. Anemia, hematuria and proteinuria are common
c. Occurs with high dose, long-term use & combinations
d. More often in elderly, DM, HTN, rheumatic diseases.

335. Which of the following could be expected in Acute tubular necrosis?

a. Proteinuria
b. RBC cast
c. Urinary Na+ more than 40meq
d. FeNa< 1%

336. A 49-year-old woman is admitted for the past 10 days for treatment of bronchopneumonia. She has developed the onset of chills, fever and rash over the past 2 days. A peripheral smear shows eosinophilia. On urine analysis she has proteinuria++ with eosinophiluria. There is no past history of renal disease. Her HbA1c is normal. These findings would most strongly suggest which of the following diagnosis.

a. Acute serum sickness
b. Acute Tubular necrosis
c. Drug induced Interstitial nephritis
d. PSGN

337. In Goodpasture's syndrome the antibodies are directed against:

a. Mesangium
b. Parietalcells
c. Basementmembrane
d. Interstitial cells

338. A patient with severe gastroenteritis progressing to prerenal failure will have all of the following biochemical abnormalities except:

a. Increase in blood urea and creatinine
b. Urea/creatinine ratio> 10.
c. Urine sodium> 20mmol/L
d. Fractional excretion of Sodium (FeNa) < 1

327. c	328. d	329. c	330. a	331. b	332. d	333. c	334. b	335. c	336. c	337. c
338. c										

339. 30-year-old male presented with haemoptysis and RPGN. He is a smoker and does not give history of precious similar episode. Renal Biopsy reveals Linear Ig deposits on the GBM. The most likely finding on serology is antibody against:

a. Alpha 1 subunit of type 4 collagen
b. Alpha 2 subunit of type 4 collagen
c. Alpha 3 subunit of type 4 collagen
d. Alpha 4 subunit of type 4 collagen

340. A 60-year-old woman presents with generalized edema and hypertension. Urine examination shows sub nephrotic proteinuria (<2 gm) and microscopic hematuria. Serum complement levels are decreased and she is positive for anti-hepatitis C antibodies. The likely diagnosis is:

a. PSGN
b. Essential mixed cryoglobulinemia
c. MPGN
d. FSGS

Section 3: CKI & RRT

341. The term 'end stage renal disease (ESRD)' is considered appropriate when GFR falls to:

a. 50%of normal
b. 25%of normal
c. 10-25% of normal
d. 5-10%of normal

342. In advanced stages of 'chronic renal failure' there is:

a. Decreased anion gap
b. Normal anion gap
c. Increased anion gap
d. Metabolic alkalosis

343. The graft survival after renal transplant is excellent with Alport's syndrome. However, there is a risk of the following Post-Transplant complication:

a. Recurrence of disease in graft kidney
b. Amyloidosis
c. Anti-GBM disease
d. All of the above.

344. Peritoneal Dialysis has following complications except:

a. Risk of Peritonitis
b. Poor Filtration rate
c. Hyperglycemia
d. Weight loss

345. A 40-year-old male with chronic kidney disease who weighs 70kg, has a serum creatinine value of 1.4mg/dl. What is the stage of his CKD:

a. Stage 1
b. Stage 2
c. Stage 3
d. Stage 4

346. A 44 year old male having DM diagnosed 7 years back presented with Nephrotic syndrome. On examination the BP – 170/90mm of Hg. The probalediagnosis IS:

a. MPGN
b. RPGN
c. FSGS
d. GPS

347. The most common extra-renal manifestation in APKD is:

a. Sub-Arachnoid hemorrhage
b. Hepatic dysfunction
c. Colonic diverticulosis
d. Oxalate renal calculi

348. Polycystic disease of the kidney may have cysts in all of the following organs, except:

a. Lung
b. Liver
c. Pancreas
d. Spleen

349. Which of the following is the most common extrarenal involvement in autosomal dominant polysystic, kidney disease:

a. Mitral valve prolapse
b. Hepatic cysts
c. Splenic cysts
d. Colonic diverticulosis

350. Which one of the following statements is wrong regardingadult polycystic kidney disease

a. Kidneys are enlarged in Size
b. The presentation is unilateral
c. Intracranial aneurysms may be associate
d. Typically manifests is the 4-5thdecade

351. Consider the following statements: Polycystic disease of the kidneys will present With:

1. Chronic renal failure
2. Hematuria and renal colic
3. Hypertension
4. Accidental finding on routine examination of abdomen.

Which of these statementsarecorrect?

a. 1 and 3
b. 2 and 4
c. 1, 3 and 4
d. 1, 2, 3 and 4

352. Sensorineural deafness associated with hereditarynephritis is seen in:

a. Fanconi's syndrome
b. Berger's disease
c. Albright'ssyndrome
d. Alport's syndrome

Section 4 : RTA/CHANNELOPATHIES/MISC

353. Vitamin D supplementation prevents development of osteomalacia in which of RTA:

a. Type 1
b. Type 2
c. Type 3
d. All of them

354. Type 1 RTA is characterized by:

a. Urinary pH is <5.5 and bicarbonate <15
b. Urinary pH is <5.5 and bicarbonate >15
c. Urinary pH is >5.5 and bicarbonate <14
d. Fanconi syndrome commonly associated

355. 30-year-old male is incidentally detected to have high BP. His Urine Chloride levels are high. Blood gas analysis revealed Metabolic alkalosis with an unmeasurable Renin levels. Which is the likely cause:

a. Barrter's syndrome
b. Gitelman's syndrome
c. Liddle's syndrome
d. All of them

339. c	340. c	341. d	342. c	343. c	344. d	345. b	346. c	347. b	348. a	349. b
350. b	351. d	352. d	353. b	354. c	355. c					

356. The most common abnormality associated with Marble Brain disease is:

a. CA defect
b. Defect of H+-K+ ATPase pump
c. Defect of Hco3 reabsorption
d. Defect of Aldosterone

357. Which of the following is a feature of Barrter's syndromeEXCEPT:

a. Secondary hyper-aldosteronism
b. Hyperkalemia
c. Metabolic alkalosis
d. Sensorineural hearing loss

358. 67-year-old gentleman who is a K/C/O ESKD on maintenance dialysis since 3 years, presented with complains of Bone pain and paraesthesia, examination revealed Carpal tunnel syndrome on the right hand. X-ray of the hand was done. The deposits seen in the X-ray are likely to be:

a. Calcium oxalate
b. Hemosiderrin
c. β2 Microglobulin
d. Transthyretin

359. In which disease, Pre-Transplant Nephrectomy is indicated?

a. Horse-Shoe kidney
b. Obstructive uropathy
c. Adult Polycystic kidney disease
d. All of the above

356. a	357. b	358. c	359. d

Section 1 : Renal Physiology & Assessment Methods

309. D IgA nephropathy

IgA nephropathy is a post-infective cause of GN following URTI. However, complement levels are normal. In Lupus, C3 levels are persistently low. While other post-infective causes like PSGN, Hepatitis B related PAN, Hepatitis C related cryoglobulinemia have initial low levels of C3 which return to normal in 4-6 weeks.

310. A. Proximal convoluted tubule

PCT is the main site for tubular resorption of bicarbonate, water and nutrients viz. glucose, aminoacids, vitamin D3 and phosphates.

311. D. Benign nephrosclerosis

In chronic renal failure, the kidneys are usually shrunken (contracted) EXCEPT:

1. DM
2. Amyloidosis (Myeloma kidney)
3. HIVAN (HIV associated nephropathy)
4. Adult Polycystic kidney disease.(APKD)

RPGN is an acute presentation of GN with normal or enlarged kidney.

312. D. Primary amyloidosis

Primary amyloidosis (Refer to explanation of above question)

313. C. Diarrhea-associated hemolytic uremic syndrome

Refer to explanation in Q.1

314. A. Kidney

Casts are formed when the RBC passes through the tubule when a patient has a renal pathology (most probably GN)

315. B. Osteomalacia

Renal Osteodystrophy in CKI consists of following with corresponding mechanism involved:

1. **Osteomalacia**: Active Vitamin D deficiency
2. **Osteitis Cystica Fibrosa** : Secondary hyperparathyroidism
3. **Adynamic bone disease** : defect in remodelling.

316. A. Normochromic

317. D. All of the above

EPO deficiency is the most common cause of anaemia in CKI. Hence, EPO replacement is the first line treatment of Anaemia. However, there are many causes for failure. They include:

a. Untreated iron deficiency
b. untreated GI blood loss
c. Occult sepsis
d. Increased risk of bleeding (coagulopathy)
e. Poor compliance
f. Inadequate dosing.

318. C. EPO deficiency

319. A. Spot urinary Albumin to creatinine ration

Test	Microalbuminuria	Gross Albuminuria
Most Reliable/ Confirmatory 24 hr Urinary Albumin	30-300mg of Albumin/24hrs	300mg of albumin/24 hrs
Most Preferred test Spot Urinary ACR (Albumin:Creatinine Ratio)	30-300mg of Albumin/gm of Creatinine	>300mg of Albumin/gm of Creatinine

320. A. Kidney

Dysmorphic haematuria is typical of Glomerulonephritis.

When the source of hematuria is the kidney, the RBC pass through the tubule and hence, deformed.

Presence of eumorphic RBC in urine indicates that the source of bleeding is below the renal pelvis.

321. B. RBC – 3-100/hpf> 2 occasions

RBC – 3-100 >/= 3 occasions are needed to qualify as significant hematuria.

322 C. Waxy cast – Interstitial nephritis

In Interstitial Nephritis – Eosinophilia is a specific finding.

Casts / Sediments	Disease
Hyaline	Most common/Benign Cast
Granular	Indicates Renal involvement
RBC cast	Acute Glomerulonephritis
WBC cast	Acute pyelonephritis
Muddy Brown Cast	Acute Tubular Necrosis
Waxy/Broad cast	CKI (Total Breakdown of Tubular architecture)

323. D. Hyperphosphatemia

Hyperphosphatemia occurs only in renal disorders. In Genetic or nutritional disorders, both calcium and phosphate levels are low.

324. B. Recombinanthumanerythropoietin therapy

Recombinant EPO is the drug of choice because the most common cause of anaemia in advanced CKI is EPO deficiency. If the response to EPO is inadequate, alternative causes like Iron, B12 deficiency, Gastritis related blood loss in stools or direct bone marrow suppression by uremia is searched for.

325. B. Inulin clearance

Inulin scan (Radio-isotope scan) is a direct marker of the GFR and hence most specific.

326. D. Preserved CMD on USG scan

Cortico-medullary differentiation on the USG is the most important paramenter to differentiate between acute and chronic kidney failure. In AKI, CMD is preserved and Loss of CMD indicates CKI.

Section 2 : Acute Kidney injury including GN

327. C. IgA nephropathy

Kidney involvement within the 1st week of URTI is pathognomic of Syn-pharyngitic nephropathy (IgA nephropathy/Berger's disease)

328. D. Absence of associated proteinuria is pathognomonic

Proteinuria > 2g/day/1.73m2 is pathognomic of GN due to any cause including IgA nephropathy.

329. C. Collapsing glomemlopathy

Collapsing type of FSGS is the pathological finding in HIVAN.

330. A. Acute Tubular Necrosis

331. B. IgA nephropathy (Berger's disease)

IgA nephropathy presents as a nephritic syndrome in majority of the cases.

332. D. Elevated IgA level.

Post-infective GN with a latent period less than 1 week is IgA nephropathy. There is also Frank (Gross haematuria) indicating IgA nephropathy

333. C. Long-term antistreptococcal prophylaxis is indicated after a prior documented case of PSGN

Unlike Rheumatic fever, recurrence of PSGN is uncommon. Hence no long-term prophylaxis is required.

334. C. Occurs with high dose, long-term use & combinations

NSAIDS affect kidney function acutely by 2 mechanisms.

1. It disrupts the PG mediated Myogenic reflex and precipitates Pre-renal azotaemia
2. It can cause interstitial nephritis.

Due to the above pathophysiology, it is common among elderly, DM, HTN, Rheumatic diseases which may have hypoperfusion of the kidneys which is dependent on auto-regulatory mechanisms. Long term use increases risk.

335. C. Urinary Na+ more than 40meq

Acute Tubular necrosis is the most common site of Renal AKI. There is loss of concentrating ability of the tubules leading to increased Na+ loss in the urine (>40 meq) and FeNa+ >4%

There is dilute urine (Urine osmolality less than 350mosm/L) Proteinuria maybe present, but quantity is less than 2g/day. (Tubular range)

RBC cast is specific of GN and unrelated to ATN.

Both optiona. and c. Can be correct, but the single best choice will be characteristic, hence c is better answer.

336. C. Drug induced Interstitial nephritis

337. C. Basementmembrane

GPS has antibody against the Alpha-3 subunit of Type 4 collagen predominantly present n the GBM and the alveolar basement membrane.

338. C. Urine sodium> 20mmoI/L

Pre-renal vs Renal AKI table from Harrison.

339. C. Alpha 3 subunit of type 4 collagen

Alpha 3 subunit of type 4 collagen.(Wegener's antigen)

Good Pastures syndrome (Pulmonary Renal syndrome) : is an auto-immune disease.

- This is characterized by lung hemorrhage, GN, and circulating antibody to basement membrane, usually in young men. Hemoptysis may precede nephritis. Lung involvement is more common among smokers for unknown reasons.
- Rapidly progressive renal failure is typical
- Circulating anti – glomerular basement membrane (GBM) antibody and linear immune – fluorescence on renal biopsy establishes the diagnosis

Plasma exchange may produce remission.

340. C. MPGN

Hepatitis C can affect the kidney by 3 mechanisms:

1. Cryoglobulinemia is most common leading to sub nephrotic proteinuria. However, > than 98% are associated with areas of skin necrosis.
2. MPGN – sub nephrotic proteinuria without skin manifestations.
3. Membranous nephropathy – Nephrotic range proteinuria

Section 3: CKI & RRT

341. D. 5-10%of normal

342. C. Increased anion gap

Increased/High Anion gap acidosis is present in

advanced stages of CKI once the GFR falls below 25ml/min due to accumulation of urates and phosphates in the blood. Urates and phosphates are unmeasured anions which are usually present in unmeasurable quantity. Increase in their blood levels causes increase in the Anion gap.

343. C. Anti-GBM disease

In Alport's syndrome, there is a congenital absence of Alpha-5 subunit of Type 4 collagen in the patient. The graft kidney however contains alpha-5 subunit which is unrecognised by the patient's immune system and hence associated with a risk of developing Anti-GBM disease.

344. D. Weight loss

Weight gain occurs due to Hyperglycemia.

Complications of Peritoneal Dialysis

1. Peritonitis (usually Staphylococcus, Streptococcus, or coliforms)
2. Catheter blockage
3. Weight gain and poor diabetic control (dialysate fluid had high sugar content)
4. Pleural effusion.

345. B. Stage 2

eGFR = (140-age) * wt (kg) / 72 * Serum creatinine (for males) *0.85(females)

Prognosis of CKD by GFR and albuminuria categories: KDIGO 2012

GFR categories (ml/min/1.73 m²) description and range			Persistent albuminuria categories description and range		
			A1	A2	A3
			Normal to mildly increased	Moderately increased	Severely increased
			<30 mg/g <3 mg/mmol	30–300 mg/g 3–30 mg/mmol	>300 mg/g >30 mg/mmol
G1	Normal or high	≥90			
G2	Mildly decreased	60–89			
G3a	Mildly to moderately decreased	45–59			
G3b	Moderately to severely decreased	30–44			
G4	Severely decreased	15–29			
G5	Kidney failure	<15			

346. C. FSGS

FSGS. The endpoint of DM nephropathy is FSGS. It is the most common cause of nephrotic syndrome in adults.

347. B. Hepatic dysfunction

The presence of multiple cysts in multiple organs are the most common features of polycystic kidney disease. Following cysts in the kidney, Liver is the second common site of cysts. Hence, Hepatic dysfunction is the most common extrarenal a manifestation of the disease.

348. A. Lung

Lungs are spared in PKD (Polycystic kidney disease). Cysts are most common in the kidneys followed by liver. Pancreas and Spleen may rarely be involved.

349. B. Hepatic cysts

Hepatic cysts can cause mechanical compression of the IHBR(Intra-hepatic biliary radicles) leading to cholestasis.

350. B. The presentation is unilateral

The presentation is always bilateral.
USG criteria to confirm the diagnosis is to find more than 2 cysts (more than 1 in each kidney) in a patient below 30 years of age.

351. D. 1, 2, 3 and 4

all are true statements

352. D. Alport's syndrome

Alport's syndrome is a triad of Glomerulonephritis, sensorneuralhearig loss with lens defect.

Section 4 : RTA/CHANNELOPATHIES/MISC

353. B. Type 2

In Type 2 RTA, there is Urinary loss of Phosphate and Vitamin D along with Reabsorption defect of Bicarbonate. Hence, needs replacement therapy to prevent bone resorption which in turn leads to Osteomalacia.

354. C. Urinary pH is >5.5 and bicarbonate <14

Type 1 RTA (DISTAL) is the most severe defect in acidification of urine. Hence, the patient never can maintain normal urinary pH < 5.5. The other 2 types of RTA are relatively mild and can maintain normal urinary pH.

355. C. Liddle's syndrome

Liddle's syndrome is a stimulatory defect in eNa+ channels at the DCT. This leads to a state of Pseudo-Hyperaldosteronism. This causes Urinary Na+ and water reabsorption even in absence of a measurable Renin levels leading to increase in Plasma volume. This leads to development of Hypertension which is often diagnosed incidentally. Treatment is available in form of Amiloride (which blocks the eNa+ channels) and offers potential cure.

Barrter's and Gitelman's syndrome are inhibitory defects of Na-K-2Cl ATPase pump and Na-Cl transporter respectively leading to defect in Na+ and water reabsorption. Hence, both syndromes are associated with dehydration.

356. A. CA defect

Carbonic anhydrous defect. This is also called Type 3 RTA. Since it is characteristic by Cerebral calcifications, it is also referred to as Marble Brain disease.

357. B. Hyperkalemia

Barrter's syndrome is an inherited channelopathy affecting the function of Na-K-2Cl ATPase pump in the thick ascending loop of Henle. It causes defect in reabsorption of sodium leading to defect in water reabsorption. This causes severe dehydration causing secondary activation of Renin- aldosterone system. Excess aldosterone activates the epithelial sodium channel(eNaC) and causes increased loss of potassium and H+ in the urine leading to Hypokalemic alkalosis. The above pump is also present in the cochlea and its defect can cause sensori-neural hearing loss.

358. C. 2 Microglobulin

B2 Micro-Globulin is neither filtered by HD nor PD. Gets deposited in musculoskeletal tissue presenting as Bone pain and Carpal tunnel syndrome. Only treatment is Renal transplant.

359. D. All of the above

The conditions mentioned are associated with high risk of infection in the kidney. Post-transplant immunosuppression can worsen this risk and stoppage of immune-suppression can lead to rejection.

GIT & Hepatobiliary System

360. Which of the following is not a malabsorption syndrome:

a. Whipple's disease
b. Coeliac disease
c. Tropical sprue
d. H pylori infection

361. Non absorption of fat soluble vitamins is due to:

a. Celiac sprue
b. Pancreatic exocrine insufficiency
c. Both
d. None

362. Abnormal D-xylose test indicates all of the following, Except-

a. Pancreatic insufficiency
b. Proximal small intestinal mucosal disease
c. Bacterial overgrowth syndrome
d. Renal failure

363. Which of the following is not used for investigation of fat malabsorption:

a. 13C Trioctanoin
b. 13C Triolein
c. 13C Tripalmitin
d. 13C Triclosan

364. Schilling test is Abnormal in:

a. Intrinsic factor deficiency
b. Amylase deficiency
c. Lipase deficiency
d. Pancreatic endocrine insufficiency

365. Which of the following statements regarding the schilling test for vitamin B_{12} malabsorption is most accurate?

a. The schilling test results are abnormal in patients with dietary vitamin B_{12} deficiency.
b. In patients with pernicious anemia, the results of the schilling test normalize after oral administration of intrinsic factor
c. In patients with ileal disease the results of the schilling test normalize after oral administration of intrinsic factor.
d. Pancreatic exocrine insufficiency does not cause schilling test results to be abnormal

366. A 12-years-old girl has history of recurrent bulky stools and abdominal pain since 3 years of age. She has moderate pallor and her weight and height are below the 3rd percentile. Which of the following is the most appropriate investigation to make a specific diagnosis?

a. Small intestinal biopsy
b. Barium studies
c. 24-hr- fecal fat estimation
d. Urinary d-xylose test

367. A 30-years-old lady presents with features of malabsorption and iron deficiency anaemia. Duodenal biopsy shows complete villus atrophy. Which of the following antibodies is likely to be present:

a. Antiendomysial antibodies
b. Anti-goblet cell antibodies
c. Anti-saccharomyces cerevisae antibodies
d. Antineutrophil cytoplasmic antibodies

368. The histological features of coeliac disease include all of the following, except:

a. Crypt hyperplasia
b. Increase in thickness of the mucosa
c. Increase in intraepithelial lymphocytes
d. Increase in inflammatory cells in lamina propria

369. Which of the following vitamin deficiencies is uncommon in celiac disease

a. Vitamin D
b. Folic Acid
c. Vitamin A
d. Vitamin B_{12}

370. In which of the following conditions of malabsorption, an intestinal biopsy is diagnostic-

a. Celiac disease
b. Tropical sprue
c. Whipple's disease
d. Lactose intolerance

371. Most common CNS manifestation of Whipple's disease is:

a. Cerebellar ataxia
b. Supranuclear ophthalmoplegia
c. Seizure
d. Dementia

372. Which of the following condition causing malabsorption has no effect on villus architecture and no inflammatory reaction?

a. Giardiasis
b. Crohn's
c. Whipple's
d. Celiac Sprue

373. Pseudopolyps are features of

a. Crohn's disease
b. Ulcerative colitis
c. Celiac sprue
d. Whipple's disease

374. Which of the following is MOST commonly affected by ulcerative colitis?

a. Cecum
b. Rectum
c. Sigmoid colon
d. Terminal ileum

375. Backwash Ileitis is seen in:

a. Ulcerative Colitis
b. Crohn's Disease
c. Colonic Carcinoma
d. Ileal Polyp

360. d	361. c	362. a	363. d	364. a	365. b	366. a	367. a	368. b	369. d	370. c
371. d	372. a	373. b	374. b	375. a					

376. A 41-years-old male patient presented with recurrent episodes of bloody Diarrhea &mucus for 5 years. Despite regular treatment with adequate doses of sulfasalazine, he has had several exacerbations of his disease and required several weeks of steroids for the control for flares. What should be the next line of treatment for him?

a. Methotrexate
b. Azathioprine
c. Cyclosporine
d. Cyclophosphamide

377. Which of the following is MOST commonly affected by Crohn's Disease?

a. Cecum
b. Rectum
c. Sigmoid colon
d. Terminal ileum

378. The presence of anti-Saccharomyces cerevisae antibody is a surrogate marker of one of the following:

a. Celiac disease
b. Crohn's disease
c. Ulcerative colitis
d. Tropical sprue

379. Extraintestinal manifestations of Inflammatory bowel disease include all of the following, Except:

a. Uveitis
b. Sclerosing cholangitis
c. Osteoarthritis
d. Skin nodules

380. Antibody shown to be useful for Crohn's Disease is:

a. Omalizumab
b. Palivizumab
c. Natalizumab
d. None of the above

381. A young girl presents with abdominal pain and a recent change in bowel habit, with passage of mucus in stool. There is no associated blood in stool and symptoms are increased with stress. The most likely diagnosis is-

a. Irritable bowel syndrome
b. Ulcerative Colitis
c. Crohn's disease
d. Amebiasis

382. Which of the following drugs is used for Irritable Bowel Syndrome of the constipating type:

a. Lubiprostone
b. Cholestyramine
c. Alosetron
d. Rifaximin

383. Which of the following organism does not cause invasive diarrhea

a. Bacillus cereus
b. Aeromonas sp
c. Salmonella
d. Shigella

384. Secretory diarrhea is not seen in:

a. Phenolphthalein
b. Celiac disease
c. Cholera
d. Addison's Disease

385. Large bowel Colonic Diarrhoea is associated with all of the following, except:

a. Large Volume Stool
b. Blood in stools
c. Tenesmus
d. Mucus

386. Diarrhea with acanthocytosis is seen in:

a. Whipple's disease
b. Celiace sprue
c. Abetalipoproteinemia
d. Ulcerative colitis

387. A patient presents with severe colitis associated with an overgrowth of clostridium difficile in the lower part of intestine. Which of the following is the most likely cause of this condition?

a. Stomach ulcer
b. Food poisoning
c. Antibiotic therapy
d. Immunosuppressed person

388. The first antibiotic linked to antibiotic associated pseudomembranous colitis is:

a. Clindamycin
b. Cephalosporins
c. Vancomycin
d. Metranidazole

389. What is the MOST common cause of Traveler's Diarrhea?

a. Enteroinvasive E. coli
b. Enterotoxigenic E. coli
c. Enteropathogenic E. coli
d. Enterohemorrhagic E. coli

390. A 14-years-old girl with history of prolonged fever and abdominal discomfort is observed to have splenomegaly and leucopenia. In the course of the disease she develops acute abdominal event and died. Which of the following is the likely finding on autopsy:

a. Transverse ulcers
b. Longitudinal ulcers
c. Pinpoint ulcers
d. Pseudopolyps

391. A patient present with lower gastrointestinal bleed. Sigmoidoscopy shows ulcers in the sigmoid. Biopsy from this area shows flask-shaped ulcers. Which of the following is the most appropriate treatment:

a. Intravenous ceftriaxone
b. Intravenous mentronidazole
c. Intravenous steroids and sulphasalazine
d. Hydrocortscone enemas

392. Features of Typhoid ulcers include all of the following Except:

a. Bleeding
b. Perforation
c. Stricture and obstruction
d. Longitudinal orientation

393. All of the following are causes of Acute Pancreatitis except-

a. Gall stones
b. Alcohol
c. Hemochromatosis
d. Hypercalcemia

394. Increased amylase may be seen in all of the following except:

a. Pancreatic pseudocyst
b. Myocardial infarction
c. Perforated peptic ulcer
d. Ruptured ectopic pregnancy

376. b	377. d	378. b	379. c	380. c	381. a	382. a	383. a	384. b	385. a	386. c
387. c	388. a	389. b	391. b	392. c	393. c	394.				

395. Monu, A 30-years-old male, a chronic alcoholic presents with sudden onset of epigastric pain that radiates to the back. All are seen Except:
a. Low serum lipase
b. Increased LDH
c. Hypocalcemia
d. Increased serum amylase

396. Cause of acute loss of vision in a patient of alcoholic pancreatic is:
a. Purtscher's retinopathy
b. Sudden alcohol withdrawal
c. Acute congestive glaucoma
d. CRAO

397. Which of the following types of pancreatitis has the best prognosis?
a. Alcoholic pancreatitis
b. Gall stone pancreatitis
c. Post-operative pancreatitis
d. Idiopathic pancreatitis

398. Most common complication of acute pancreatitis is:
a. Pancreatic abscess
b. Pseudocyst
c. Phlegmon
d. Pleural effusion

399. Weight loss may be seen in all of the following except:
a. Uremia
b. Pheochromacytoma
c. Adrenal insufficiency
d. Insulinoma

400. The most classical symptom of VIPOMA is:
a. Gall stones
b. Secretory diarrhea
c. Steatorrhea
d. Flushing

401. Pancreatic cholera is characterized by all except:
a. Hypochlorhydria
b. Hypokalemia
c. Glucose intolerance
d. Hypocalcemia

402. FOR the diagnosis of which of the following is the Alvarado score used?
a. Pancreatitis
b. Cholecystitis
c. Ulcerative colitis
d. Acute appendicitis

403. In the treatment of which of the following is the oschnersherren regimen used?
a. Diverticulitis
b. Apendicular lump
c. Ilececal tuberculosis
d. Acute intestinal obstruction

404. Gastric motility decreases in A/E:
a. Diabetes
b. Upper abdominal surgery
c. Stroke
d. Hyperthyroidism

405. Hypergastrinemia with hypochlorhydria is seen in:
a. Zollinger Ellison Syndrome
b. VIPoma
c. Pernicious anemia
d. Glucagonoma

406. A young patient presenting with massive hematemesis was found to have splenomegaly. In this case the most likely source of bleeding is:
a. Duodenal ulcer
b. Esophageal varices
c. Erosive mucosal disease
d. Gastric ulcer

407. Following are causes of unconjugated hyperbilirubinemia, except:
a. Hemolytic anemia
b. Large hematoma
c. Rotor syndrome
d. Megaloblastic anemia

408. Conjugated hyperbilirubinemia is seen in:
a. Gilbert's syndrome
b. Criggler Najjar syndrome
c. Breast milk jaundice
d. Dubin Johnson syndrome

409. Unconjugated Bilirubin is absent in urine because it is-
a. Distributed in the body fat
b. Conjugated with glucoron
c. Not filtered
d. Lipophobic

410. A patient presents with unconjugated hyperbilirubinemia and presence of urobilinogen in urine. Which amongst the following is the least likely diagnosis:
a. Hemolytic jaundice
b. Crigler Najjar syndrome
c. Gilbert's syndrome
d. Dubin Johnson syndrome

411. A 8 years old child presents with Total bilirubin levels of 2.4 mg/dl Urinary Urobilinogen levels are increased and Bilirubin is absent in urine. The most likely diagnosis is
a. Hepatitis
b. Hemolytic jaundice
c. Obstructive jaundice
d. Dubin Johnson's syndrome

412. A young male with gallbladder stones shows the following test results; serum bilirubin 2.5, Hb 6; urine test positive for urobilinogen; diagnosis is:
a. Hemolytic jaundice
b. Obstructive jaundice
c. Hepatocellular jaundice
d. Protoporphyria

413. Increased B_{12} level is seen in all, except:
a. Cirrhosis
b. Primary hepatocellular Ca
c. Hepatitis
d. Cholestatic jaundice

395. a	396. a	397. b	398. b	399. d	400. b	401. d	402. d	403. b	404. d	405. c
406. b	407. c	408. d	409. c	410. d	411. b	412. a	413. d			

414. A 56-years-old man presents to his internist with jaundice. The patient is receiving no medication and his only symptomatic complaints is mild fatigue over the past 2 months. Physical examination is remarkable only for the presence of scleral icterus. The patient has no significant past medical history. Analysis of serum chemistry reveals the following:
SGOT : 0.58 microkat/L (35U/L)
SGPT : 0.58 microkat/L (35U/L)
Total bilirubin : 91.7 micron mo1/L (7 mg/dL)
Direct Bilirubin : 85.5 micron mo1/L (5mg/dL)
Alkaline phosphatase: 12 micronkat/L (720U/L)
Which of the following is the next appropriate diagnostic step?
a. Ultrasound
b. Liver biopsy
c. Review of peripheral blood smear
d. Endoscopicretrograde cholangiopancreatography (ERCP)

415. The test used to diagnose Dubin Johnson syndrome is
a. Serum transaminases
b. BSP test
c. Hippurate test
d. Gamma glutamyl transferase level

416. A 50-years-old lady presented with history of pain upper abdomen, nausea, and decreased appetite for 5 days. She had undergone cholecystectomy 2 years back. Her bilirubin was 10 mg/dl, SGPT 900 IU/L SSGOT 700 IU/L and serum alkaline phosphatase was 280 IU/L. what is the most likely diagnosis-
a. Acute pancreatitis
b. Acute cholangitis
c. Acute viral hepatitis
d. Posterior penetration of peptic ulcer

417. The commonest hepatotropic virus progressing to chronicityis:
a. HEV
b. HAV
c. HBV
d. HCV

418. Which of the following hepatitis viruses have significant perinatal transmission:
a. Hepatitis E virus
b. Hepatitis C virus
c. Hepatitis B virus
d. Hepatitis A virus

419. Non-parenteral hepatitis is:
a. Hepatitis E
b. Hep B
c. Hep C
d. Hep D

420. All of the following are correctly matched, Except
a. LKM1 – Autoimmune Hepatitis
b. LKM2 – Drug Induced Hepatitis
c. LKM1 – Chronic Hepatitis C
d. LKM2 – Chronic Hepatitis D

421. Which of the following viral infections is associated with highest risk of progression to fulminant disease and acute liver failure:
a. HEV infection
b. HBV infection
c. HBV/HDV coinfection
d. HDV/HBV Superinfection

422. Acute infection of hepatitis B virus is diagnosed by:
a. HbsAg
b. IgM antibody of Hb_c AG
c. IgM antibody of Hb_e AG
d. IgM antibody of Hb_s AG

423. Hepatitis B can be transmitted through all of the following except
a. Semen
b. Blood
c. Breast milk
d. Fecal-oral (stool)

424. A 29-years-old patient with jaundice is positive for HBsAg, HBeAg, and IgM anti-HBC but negative for anti-HBs and anti-HBe. The probable diagnosis is:
a. Acute Hepatitis B
b. Past infection with HBV.
c. Asymptomatic carrier state.
d. Immunization with HBV vaccine

425. The marker for determining efficacy of hepatitis B vaccination is:
a. HBs Ag
b. IgM Anti HBc
c. IgG Anti HBc
d. Anti-HBs Ag

426. The only serological marker present in the 'window period' of Hepatitis B is
a. Anti HBc
b. HBs Ag
c. Anti HBs
d. HBe Ag

427. Hepatitis B infectivity is indicated by:
a. Anti-HBsAg
b. HBsAg + HBeAg
c. Anti-HBsAg – AntiHBc
d. Anti-HBeAg + Anti-Hbs Ag

428. 35-years-old man was found +ve for HBsAg &HBeAg, accidentally during screening of blood donation. On Lab examination SGOT & SGPT are Normal. What should you do next:
a. Liver biopsy
b. Interferon therapy
c. Observation
d. HBV-DNA estimation

429. A blood donor is not considered for safe transfusion, if he has:
a. Anti HBs Ag +ve
b. Anti HBs Ag and IgG antiHBc +ve
c. Hbs Ag +ve, & IgM anti HBc +ve
d. All

430. Which one of the following pairs regarding Hepatitis B is not correctly matched
a. Acute Viral Hepatitis B – Supportive care
b. Acute Viral Hepatitis B – Antiviral therapy
c. Chronic Viral Hepatitis B – Supportive care
d. Chronic Viral Hepatitis C – Antiviral therapy

414. a	415. b	416. c	417. d	418. c	419. a	420. d	421. d	422. b	423. d	424. a
425. d	426. a	427. b	428. d	429. c	430. b					

431. Best site of giving hepatitis B vaccine is:
a. Subcutaneous
b. Intradermal
c. Intra-muscular deltoid
d. Intra-muscular gluteal

432. Hepatitis C virus is associated with:
a. Anti LKM antibody
b. Scleroderma
c. Cryoglobulinemia
d. Polyarteritis nodosa

433. True regarding hepatitis E virus is:
a. Seen in Post transfusion cases
b. Associated with increased mortality in pregnant female
c. Associated with hepatitis B virus
d. Acquired by breast feeding

434. Most common type of hepatitis responsible for epidemics in India is:
a. Hepatitis A
b. Hepatitis B
c. Hepatitis C
d. Hepatitis E

435. Features of Alcoholic hepatitis include all of the following except:
a. Elevated bilirubin
b. Prolonged prothrombin time
c. Elevated serum albumin
d. Anemia

436. Ratio of AST/ALT > 1 is present in
a. None alcoholic steatohepatitis
b. Alcoholic hepatitis
c. Wilson's disease
d. All of the above

437. Which of the following enzyme assay is useful to diagnose alcoholism
a. SGOT
b. SGPT
c. Alkaline phosphatase
d. Glutamyl aminotransferase

438. Maddrey discriminant score is used for determining mortality due to:
a. Alcoholic hepatitis
b. Viral hepatitis
c. Cryptogenic hepatitis
d. Hepatic encephalopathy

439. Zieve syndrome is characterized by all except:
a. Alcohol abuse
b. Hemolysis
c. Hyperlipidemia
d. Pancreatic lipase deficiency

440. Endemic ascites is caused due to:
a. Field fungae
b. Sanguinarine
c. Fusarium toxins
d. Pyrrolizidine alkaloids

441. Most common symptom of primary biliary cirrhosis is
a. Fatique
b. Abdominal pain
c. Jaundice
d. Pruritis

442. Antibodies usually elevated in primary biliary cirrhosis are:
a. Antiactin antibodies
b. Antinuclear antibodies
c. Antimitochondrial antibodies
d. Antisoluble liver antigen antibodies

443. A 12-years-old boy presents with hematemesis, malena and mild splenomegaly. There is no obvious jaundice or asicitis. The most likely diagnosis is:
a. EHPVO
b. NCPF
c. Cirrhosis
d. Malaria with DIC

444. Which of the following is the most common presenting symptom of non-cirrhotic portal hypertension?
a. Chronic liver failure
b. Ascites
c. Upper gastrointestinal bleeding
d. Encephalopathy

445. Normal portal venous pressure is:
a. 3-5 cm saline
b. 5-10 cm saline
c. 10-15 cm saline
d. 15-20 cm saline

446. A 40-years-old patient, a known case of cirrhosis develops acute episode of GI bleed. Initial therapy given for 6 hours. Which of the following procedure is useful:
a. Nasogastric aspiration
b. Urgent endoscopy
c. Sedation
d. Ultrasound

447. Rockall score is used for prognosis of patients of:
a. Upper GI bleeding
b. Lower GI bleeding
c. Hepatic encephalopathy
d. IBD

448. Forrest classification is used for evaluating:
a. Upper GI bleeding
b. Liver transplantation
c. Lower GI bleeding
d. Familial adenomatous polyposis

449. Stigmata of chronic Liver disease include all of the following, except
a. Palmar Erythema
b. Spidernaevi
c. Testicular Atrophy
d. Subcutaneous nodules

450. Which of the following is not a precipitating factor for hepatic encephalopathy in patients with chronic liver disease?
a. Hypokalemia
b. Hyponatremia
c. Hypoxia
d. Metabolic acidosis

431. c	432. c	433. b	434. d	435. c	436. b	437. d	438. a	439. d	440. d	441. a
442. c	443. a	444. c	445. c	446. b	447. a	448. a	449. d	450. d		

451. In patients with acute liver failure, the best prognostic indicator is:
a. Serum albumin
b. Serum alpha feto protein
c. Serum bilirubin
d. Factor V estimation

452. The first laboratory test that becomes abnormal in acute hepatocellular failure is:
a. Prothrombin time (PT)
b. APTT
c. Decreased Albumin
d. Increased Arterial Ammonia

453. Flapping Tremors may be associated with all of the following, Except
a. Hepatic encephalopathy
b. Uremia
c. CO_2 Narcosis
d. Thyrotoxicosis

454. Which of the following statements is incorrect with regard tohepatorenal syndrome in a patient with cirrhosis
a. The creatinine clearance is reduced
b. The urinary sodium is less than 10 mmol/L
c. The urine osmolality is lower than the plasma osmolality
d. There is poor response to volume expansion

455. All of the following are risk factors for Hepatocellular carcinoma except:
a. Hepatitis C infection
b. Alcoholism
c. Alfatoxins
d. Animal fat in diet

456. 38 years old man Babbu, a chronic alcoholic, presents with pain in abdomen. On examination his liver is enlarged and serum α fetoprotein is elevated. The most likely diagnosis is:
a. Hepatocellular carcinoma
b. Liver cell hyperplasia
c. Hepatic adenoma
d. Hepatitis

457. Budd-chiari syndrome is most commonly due to:
a. Hepatic vein obstruction
b. Acute portal hypertension
c. Congenital portal hypertension
d. IVC- obstruction

458. The following is the least likely manifestation of Acute Budd-Chiari syndrome:
a. Enlarged tender liver
b. Ascites
c. Jaundice
d. Venous collaterals

459. All of the following are features of Wilson's disease except
a. Increased copper content in liver
b. Increased ceruloplasmin
c. Mental changes
d. Features of chronic active hepatitis

460. Wilson's disease, features are all except:
a. Sunflower Cataract
b. Tremors
c. Pronounced sensory changes
d. Renal Calculi may be seen

461. Low serum copper due to ATP 7A gene is due to?
a. Dubin-Johnson's syndrome
b. Wilson disease
c. Menke disease
d. Gilbert's disease

462. A patient presents with Arthritis, hyperpigmentation of skin and hypogonadism, likely diagnosis is-
a. Hemochromatosis
b. Ectopic ACTH secreting tumour of the lung
c. Wilson's disease
d. Rheumatoid arthritis

463. Which of the following is least commonly involved organ system in Hemochromatosis:
a. Liver
b. Skin
c. Joints
d. Eye

464. Lallo, aged 54 years, who is a known diabetic patient develops cirrhosis. There is associated skin hyperpigmentation and restrictive cardiomyopathy which of the following is the best initial test to diagnose this case.
a. Total Iron binding capacity
b. Serum ferritin
c. Serum copper
d. Serum ceruloplasmin

465. All are seen in hemochromatosis except-
a. Hypogonadism
b. Arthropathy
c. Bronze diabetes
d. Desferrioxamine is the treatment of choice

466. What is the most common intercostal space used for hepatic biopsy:
a. 5^{th}
b. 6^{th}
c. 7^{th}
d. 8^{th}

467. Which of the following statements regarding liver enzymes is true
a. ALT is less specific indicator of liver injury than AST
b. Absolute levels of aminotransferase correlate with outcome
c. GGT can be increased in fatty liver without obstruction.
d. None of the above

468. Milan criteria is used for:
a. Liver transplantation
b. GERD staging
c. Cirrhosis staging
d. Hepatic encephalopathy staging

451. d	452. a	453. d	454. c	455. d	456. a	457. a	458. d	459. b	460. c	461. c
462. a	463. d	464. b	465. d	466. d	467. c	468. a				

469. M.E.L.D score includes all except:

a. Bilirubin
b. INR
c. Serum creatinine
d. Serum albumin

Gastroenterology

470. 5' -Nucleotidase activity is increased in: (AI 2005)

a. Bone disease
b. Prostate cancer
c. Chronie renal failure
d. Cholestatic disorders

471. Which one of the following conditions commonly predisposes to colonic carcinoma?(A1 2005)

a. Ulcerative colitis
b. Crohn's disease
c. Divereriicular disease
d. Ischaemic colitis

472. Which one of the following serum levels would help in distinguishing an acute liver disease from chronic liver disease: (AI 2005)

a. Aminotransaminasc
b. Alkaline phosphatase
c. Bilirubin
d. Albumin.

473. Which one of the following diseasecharac-terristically causes fatty change in liver's (AI 2005)

a. Hepatitis B virus infection
b. Wilson's disease
c. Hepatitis C virus infection
d. Chronic alcoholism

474. Which one of the following is not a feature of liver histology in non cirrhotic portal fibrosis (NCPF): (AI 2005)

a. Fibrosis in and around the portal tracts.
b. Thrombosis of the medium and small portal vein branches.
c. Non specific inflammatory cell infiltrates in the portal tracts
d. Bridging fibrosis.

475. A young pregnant woman presents with fulminanthepatic failure. The most likely aetiological agent is: (A1 2004)

a. Hepatitis B virus
b. Hepatitis C virus.
c. Hepatitis E virus
d. Hepatitis A virus

476. Gluten sensitive enteropathy is most strongly associated with: (A1 2003)

a. HLA-DQ2
b. HLA-DR4
c. HLA-DQ3
d. Blood group 'B

477. In patients with cirrhosis of the liver the site of obstruction in the portal system is in the: (AI 2004)

a. Hepatic vein
b. Post sinusoidal
c. Extra hepatic portal vein
d. Sinusoids

478. A 2 month old baby with acute icteric viral hepatitis like illness slips into encephalopthy after 48 hours.The mother is a known hepatitis B carrier. Mother's hepatitis B virus serological profile is most likely to be: (A1 2003)

a. HbsAG positive only
b. HbsAG and HbeAG positive
c. HbsAG and Hbe antibody positive
d. HBV DNA positive

479. All of the following are causes of microvesicular fatty liver except; (AIIMS 2005)

a. Reye's syndrome
b. Obesity
c. Acute fatty liver of pregnancy
d. Valproic acid

480. Following resuscitation. a patient with bleeding esophageal varices should be treated. initially with: (AIIMS 2004)

a. Endoscopic band ligation
b. Sengstaken Blakmoretube
c. Propranolol
d. Surgery

481. A 35 year-old male patient presented with history of jaundice for 15 days which was preceded by a prodromal illness. His serum tested positive for HBsAg. A clinical diagnosis of acute hepatitis B was made. What should the next most appropriate choice? (AIIMS 2003)

a. Anti-HBeAg antibody
b. HBe antigen
c. Anti-HBc IgM antibody
d. HBV DNA by PCR

482. A 27 -year old female presents with complaints of fever, arthritis and painful nodules on the shins associated with bloody diarrhea. She is most likely to be suffering from: (UPSC 2001)

a. Amoebic dysentery
b. Tropical sprue
c. Hemolytic Ulcerative syndrome
d. Ulcerative colitis

483. Lower gastoinestinal bleeding is defined as: (UPSC 20(04)

a. Bleeding distal to junction to proximal. 1/3rd and distal 2/3rd of transverse colon
b. Bleeding distal to junction of proximal 2/3rd and distal 1/3rd of transverse colon
c. Bleeding from large bowel beyond ileocaecal junction
d. Bleeding from small bowel from beyond ligament of Treitz

484. Which one of the following is not used as a criteria in the Child-Pugh classification of liver disease to identify the risk categories? (UPSC 2002)

a. Serum albumin
b. SGOT-SGPT ratio
c. Ascites
d. Prothrombin time

469. d	470. d	471. a	472. d	473. d	474. d	475. c	476. a	477. d	478. b	479. b
480. a	481. c	482. d	483. d	484. b					

Gastrointestinal Tract and Liver — Explanations

GIT & Hepatobiliary System

360. D. H pylori infection

Malabsorption syndrome is due to small intestinal diseases and not H pylori infection.

361. C. Celiac sprue

Fat absorption needs lipase synthesized in pancreas and villous absorption will be defective in celiac sprue.

362. A. Pancreatic insufficiency

D xylose is absorbed from proximal small intestine and is excreted by kidneys.Bacteria in proximal small intestine will consume D xylose.Pancreatic insufficiency will not affect D xylose test.

363. D. 13C Triclosan

In breath test for fat malabsorption all are used except triclosan.

364. A. Intrinsic factor deficiency

Scilling test is abnormal in IF deficiency, exocrine pancreatic insufficiency, bacterial overgrowth syndrome and ileal disease.

365. B. In patients with pernicious anemia, the results of the schilling test normalize after oral administration of intrinsic factor

In dietary deficiency of vitamin B12 schilling test is normal as there is external deficiency.In IF deficiency (pernicious anemia) result of schilling test will normalize after oral administration of IF.In pancreatic exocrine deficiency schilling test will be abnormal and will improve after adding pancreatic enzymes.

366. A. Small intestinal biopsy

Small intestinal biopsy is the most specific and gold standard test of intestinal malabsorption. steatorrhea will be present in almost every cause of malabsorption.While D xylose will be abnormal in proximal small intestinal diseases.

367. A. Antiendomysial antibodies

The findings are suggestive of celiac sprue. Anti endomysial ab is most specific ab of celiac sprue.

368. B. Increase in thickness of the mucosa

The histological features of celiac sprue include loss of villi, crypthyperplasia, lymphocyticinfilteration. There is no increase thickness of mucosa.

369. D. Vitamin B_{12}

All fat soluble vitamin will not be absorbed from small intestinal diseases.Celiac disease affects proximal small intestine hence folic acid,iron,calcium will not be absorbed.Vitamin b12 will not be affected in celiac sprue as its absorbed from distal small intestine.

370. C. Whipple's disease

Other disorders will show non specific changes.

371. D. Dementia

Most specific cns manifestation is oculo masticatory myorhythmia and most common cns manifestation is dementia.

372. A. Giardiasis

Giardiasis is enteroadhesive infection of small intestine and will not affet villus structure and will not cause inflammatory reaction.

373. B. Ulcerative colitis

Pseudopolyps are more common in ulcerative colitis than crohns disease.

374. B. Rectum

Most common site affected in UC is rectosigmoid more than rectum alone.

375 A. Ulcerative Colitis

Spill over of colonic inflammation into distal ileum is known as backwash ileitis.

376. B. Azathioprine

This clinical presentation is suggestive of steroid dependent IBD. Steroid sparing drug will be given ie azathioprine.

377. D. Terminal ileum

Combination of SI and LI is more common than SI only.As a single site terminal ilium is most commonly involved.

378. B. Crohn's disease

Celiac disease-Anti endomysial and tTGab, Crohns disease-ASCA, Ulcerative colitis-pANCA. Tropical sprue is not associated with ab.

379. C. Osteoarthritis

All are seen except osteoarthritis.

380. C. Natalizumab

Natalizumab is anti incretin used in management of crohn's disease.Omalizumab(anti IgE ab) is used in bronchial asthma.Palivizumab is used in prophylaxis of RSV infection.

381. A. Irritable bowel syndrome

IBS is not associated with blood in stools and is aggravated by stress. Other conditions will be associated with blood in stools.

382. A. Lubiprostone

Lubiprostone is chloride secretagogue leading to secretory diarrhea.Other agents are used in diarrhea prominent IBS.Drugs used in IBS:

Symptom	Drug	Dose
Diarrhea	Loperamide	2 – 4 mg when necessary/ maximum 12 g/d
	Cholestyramine resin	4 g with meals
	Atosetron*	05-1 mg bid (for severe IBS, women)
Constipation	Psyllium husk	3 4 g bid with meals, then adjust
	Methylcellulose	2 g bid with meals, then adjust
	Calcium polycarbophil	1 g qd to qid
	Lactulose syrup	10 20 g bid
	70% sorbitol	15 mL bid
	Polyethylene glycol 3350	17 g in 2S0 mL water qd
	Lubiprostone (Amitiza)	24 mg bid
	Magnesium hydroxide	30-60 mL qd
	Liraclotide	290 µg bid
Abdominal pain	Smooth muscle relaxant	qd to qid ac
	Tricyclic antidepressants	Start 25-50 mg hs, then adjust
	Selective serotonin reuptake inhibitors	Begin small dose, increase as needed
Gas and bloatrg	Low FODMAP diet	qd
	Probiotics	
	Rifaximin	550 mg bid

383. A. Bacillus cereus

B.Cereus causes toxin induced diarrhea,other organism leads to inflammatory invasive diarrhea.

384. B. Phenolphthalein

Phenolphthalein is secretory laxative,cholera toxin by stimulating cAMP causes secretory diarrhea. Addison disease by decreasing sodium reabsorption from intestine leads to secretory diarrhea.Celiac disease causes steatorrhea induced chronic diarrhea not secretory diarrhea.

385. A. Large Volume Stool

Difference between small intestine and large intestine diarrhoea

Feature	Small intestinal diarrhoea	Large intestinal diarrhoea
Volume	Large	Small
Colour	Light	Dark
Smell	Very foul	Foul
Nature	Watery/greasy	Mucoid
Blood in stools	Rare	Common
Pus in stools	Rare	Common
Abdominal pain	Mid abdomen (colic)	Lower abdomen (continuous)
Tenesmus	Absent	present
Pathogens	V. cholera/Ecoli/viral/ giardia	Shigella/E.histolytica

386. C. Abetalipoproteinemia

Abetalipoproteinemia is associated with acanthocytosis and steatorrhea induced diarrhea.

387. C. Antibiotic therapy

The most common risk factor for C. difficile infection is antibiotic use. Other risk factors- old age, GI surgery, electronic rectal thermometers.

388. A. Clindamycin

A Pseudomembranous colitis was first noted with Clindamycin use. Hower, in the recent past, use of Clindamycin has decreased and cases are now related to use of Cephalosporins.

389. B. Enterotoxigenic E. coli

ETEC is the most common cause of traveler's diarrhea.

390. B. Longitudinal ulcers

This a case of typhoid fever complicated with small intestine perforated ulcer which is longitudinal.

391. B. Intravenous mentronidazole

Flask shaped ulcer is typical of E.Histolytica. Treatment is metronidazole or tinidazole.

392. C. Stricture and obstruction

Typhoid ulcers are longitudinal and can cause bleeding and perforation. Ulcers are not transverse hence stricture are not seen.

393. C. Hemochromatosis

All are the causes of acute pancreatitis except hemochromatosis which causes endocrine insufficiency of pancreas-bronze diabetes.

394.

Causes of increased serum amylase-

Pancreatic diseases: pancreatitis, pseudocysts, pancreatic ascites, pancreatic trauma and choledocholithiasis.

Salivary gland diseases: trauma, radiation and stone

Intestinal diseases: inflammatory disease of the small intestine, mesenteric infarction, intestinal obstruction, appendicitis, and peritonitis.

Reproductive tract diseases: Ruptured ectopic pregnancy, fallopian or ovarian cysts, and salpingitis.

Ectopic amylase production: lung, ovary, pancreas, and colon malignancies, pheochromocytoma, thymoma, multiple myeloma (increased salivary amylase), breast cancer

Decreased clearance: renal and hepatic failure.

395. A. Low serum lipase

In acute pancreatitis serum amylase, lipase and LDH will be increased. Fatty acids releases due to pancreatic lipase will bind with calcium causing hypocalcemia.

396. A. Purtscher's retinopathy

After pancreatic injury or inflammation, proteases such as trypsin activate the complement system and cause coagulation and leukoembolization of retinal precapillary arterioles.Findings includeoptic nerve

edema, cotton-wool spots, retinal hemorrhage, artery attenuation, venous dilation, and Purtscherflecken.

397. B. Gall stone pancreatitis

Pancreatitis due to gall bladder stone has best prognosis.

398. B. Pseudocyst

Most common complication of acute pancreatitis is pseudocyst.

399. D. Insulinoma

Insulinoma is associated with hypoglycemia leading to increased food intake and weight gain. Rest other conditions are associated with weight loss.

400. B. Secretory diarrhea

In all cases of VIPoma secretory diarrhea is seen.

401. D. Hypocalcemia

The syndrome of watery diarrhea, hypokalemia, and achlorhydria (ie, WDHA syndrome or pancreatic cholera) is characterized by severe, watery diarrhea resulting from the oversecretion of vasoactive intestinal peptide (VIP) from non-beta pancreatic islet cells. Other features include hypercalcemia, hyperglycemiaand flushing.

402. D. Acute appendicitis

Score of 5 or more is predictive of acute appendicitis.

Characteristics	Score
M = migration of pain to ttie RLQ	1
A = anorexia	1
N = nausea and vomiting	1
T = tenderness in RLQ	2
R = rebound pain	1
E - elevated temperaiure	1
L = leukocytosis	2
S = shfft of WBC to ttie left	1
Total	10

403. B. Apendicular lump

- Conservative (Ochsner-Sherren Regimen), Includes:
- Temp, BP, pulse chart, marking the (progression/ regression).
- Antibiotics (Ampicillin, metronidazole), IVfluids and analgesics.
- Contraindications for Ochsner-Sherren regimen:

1. When diagnosis is in doubt
2. In acute appendicitis in children and elderly.
3. Gangrenous appendicitis.
4. Diffuse peritonitis sets in.

404. D. Hyperthyroidism

Gastric motility is decreased in diabetes (gastroparesis), upper abdominal surgery and stroke. It is increased in hyperthyroidism.

405. C. Pernicious anemia

Causes of hypergastrinemia in relation to acid production	
Decreased acid production	H2 blocker or PPI therapy H. pylori infection Atrophic corporal gastritis Renal failure Vagotomy
Normal or increased acid production	Zollinger-EUison syndrome Retained antrum syndrome Antral G cell hyperplasia Gastric outlet obstruction

406. B. Esophageal varices

Hematmesis with splenomegaly goes in favor of portal hypertension. Hemetmesis without portal hypertension will suggest peptic ulcer.

407. C. Rotor syndrome

Rotor syndrome is a cause of conjugated hyperbilirubinemia. Other causes degradation of RBC leading to unconjugated hyperbilirubinemia.

408. D. Dubin Johnson syndrome

Dubin Johnson and rotor syndrome are causes of isolated conjugated bilirubinemia. Causes of isolated unconjugated hyperbilirubinemia include- Crigler Najjar syndrome, Gilbert'ssyndrome, Breast milk jaundice and Lucey Driscoll syndrome.

409. C. Not filtered

Unconjugated bilirubin is bound with albumin hence not filtered by glomeruli.

410. D. Dubin Johnson syndrome

Dubin Johnson syndrome is a cause of conjugated hyperbilirubinemia.

411. B. Hemolytic jaundice

Hyperbilirubinemia with absent bilirubin in urine suggest unconjugated hyperbilirubinemia-hemolytic anemia.

412 A. Hemolytic jaundice

Pigmented gall bladder stones is typically associated with hemolytic anemia.

413. D. Cholestatic jaundice

In cirrhosis there is decreased uptake of vitamin B12 in liver due to fibrosis.In hepatitis and primary HCC there is necrosis of hepatocytes leading to release of hepatic vitamin B12 into blood.

414. A. Ultrasound

The findings are suggestive of obstructive jaundice as ALP is raised.The next step will be USG abdomen.

415. B. BSP test

In Dubin Johnson syndrome there will be no BSP clearance. Transaminase and obstructive enzymes remain normal in DJS.

416. C. Acute viral hepatitis

Marked elevation of SGOT and SGPT will favor the diagnosis of acute viral hepatitis.

417. D. HCV

Maximum risk of progression to chronic hepatitis is seen in hepatitis C(85%) while in hepatitis B the risk is 1-10%.Hepatitis A and E(except genotype 3 which can cause chronic hepatitis) are not associated with chronic hepatitis.

418. C. Hepatitis B virus

Risk of perinatal transmission in hepatitis B is 90% if mother is HbeAg positive and 10% if antiHbepositive. For hepatitis C its 5% risk.In hepatitis E perinatal risk is rare and not seen in hepatitis A.

419. A. Hep C

Hepatitis E is transmitted mainly by feco-oral route and parentral route is not seen.

420. D. LKM2 – Chronic Hepatitis D

LKM3 is seen in hepatitis D. Rest antibodies are correctly matched.

421. D. HDV/HBV Superinfection

The risk of progression to fulminant hepatitis is

Hepatitis	Risk of fulminant hepatitis
A	0.1%
B	0.1-1%
C	0.1%(least risk)
D coinfection with hepB	5%
D superinfection on hep B	20%
E non pregnancy	1-2%
E pregnancy	10-20%

422. B. IgM antibody of Hbc AG

Acute infection of hepatitis B is diagnosed by IgM anti Hbc. HbsAg can be positive in chronic infection also.

423-D. Fecal-oral (stool)

Hepatitis B very rarely is transmitted by breast milk and not transmitted by feco-oral route at all.

424. A. Acute Hepatitis B

Acute hepatitis B will be positive for HbsAg,HbeAg and IgM anti Hbc.Past infection will be negative for HbsAg and positive for IgG anti Hbc and anti Hbs. Asymptomatic carrier state will have HbsAg and anti Hbs positive not IgM anti Hbc.Immunization with vaccine will have anti Hbs only.

425. D. Anti-HBs Ag

Anti Hbs is protective antibody and determine the efficacy of hepatitis B vaccine.

426. A. Anti HBc

Window period represents absence of both HbsAg and anti Hbs. Serology positive will be IgM anti Hbc.

427. B. v

Infectivity is best represented by HbeAg and HbsAg represents viremia hence best answer will be option B.

428. D. HBV-DNA estimation

Patient incidently diagnosed as HbsAg means chronic asymptomatic hepatitis B infection. To know its replication status HBV DNA will be needed.

429. C. Hbs Ag +ve, & IgM anti HBc +ve

This will represent acute hepatitis B infection. AntiHbs represents immunized status. AntiHbs+antiHbc represent remote past infection.

430. B. Acute Viral Hepatitis B – Antiviral therapy

Anti viral therapy needed for acute and chronic hepatitis C. For chronic hepatitis B both supportive treatment(asymptomatic inactive carrier) and antiviral treatment is given(immune active phase)

431. C. Intra-muscular deltoid

For better absorption.

432. C. Cryoglobulinemia

Though both anti LKM and cryoglobulinemia will be present but cryoglobulinemia is more common.

433. B. Associated with increased mortality in pregnant female

Hepatitis E is aminly transmitted by feco oral route and not by post transfusion and breast feeding. There is increased mortality in pregnant female.Hep E is not associated with Hepatitis B.

434. D. Hepatitis E

Hepatitis E is responsible for epidemic while hepatitis A is endemic.

435. C. Elevated serum albumin

Decreased serum albumin will be seen in alcoholic hepatitis (due to decreased synthesis in liver). Anemia will be due to acanthocytosis (hemolytic anemia) seen in alcoholic patients.

436. B. Alcoholic hepatitis

ALT synthesis needs pyridoxal PO4 and pyridoxine deficiency occur in alcoholic patients leading to AST/ALT >1.In other liver diseases AST/ALT <1.

437. D. Glutamyl aminotransferase

Ethanol is GGT inducer.

438. A. Alcoholic hepatitis

Maddrey's score is severity score of alcoholic hepatitis and if more than 32 is an indication to start steroids. Formula is 4.6x (prothrombin time of patient in second-prothrombin time of control in seconds)+ serum total bilirubin (mg/dl).

439. D. Pancreatic lipase deficiency

Pancreatic lipase deficiency is not seen in zieve syndrome.

440. D. Pyrrolizidine alkaloids

Pyrrolizidine alkaloids leads to veno occlusive disease with increased sinusoidal pressure causing ascites.

441. A. Fatique

The most common symptom is fatique while most characteristic symptom is pruritis.

442 C. Antimitochondrial antibodies

Most common and most characteristic ab seen in PBC is anti mitochondrial ab.

443. A. EHPVO

Hemetmesis with splenomegaly suggest diagnosis of portal hypertension. Age less than 20 goes in favour of EHPVO while NCPF occur after 20 years. Cirrhosis with have jaundice and ascites along with portal hypertension.

444. C. Upper gastrointestinal bleeding

In NCPF liver parenchyma is spared hence no signs of chronic liver failure like ascites and encephalopathy seen. Due to portal hypertension upper GI bleed is most common presenting symptom.

445. C. 10-15 cm saline

Normal portal venous pressure is 5-10 mmHg or 10-15 cm saline.

446. B. Urgent endoscopy

Definitive treatment of choice for upper GI bleed due to portal hypertension is endoscopic band ligation.

447. A. Upper GI bleeding

Rockall score is used for mortality prediction in upper GI bleed.

Calculation of Rockall Score
High risk score > 5 Low risk score ≤ 5[1]

Variable	Score			
	0	1	2	3
Age	<60	60-79	>80	
Shock	No shock SBP≥100 PR<100	Tachycardia SBP≥100 PR≥100	Hypotension SBP≤100	
Co Morbidity	No major Co-morbidity		Cardiac Failure, IHD, any major co-morbidity	Renal failure, liver failure disseminated malignancy
Diagnosis	Mallory-Weiss tear, no lesion identified, no SRH or blood	All other diagnosis	Malignancy of upper GI tract	
Major SRH	None or dark spot		Blood in upper GI tract, adherent clot, visible or spurting vessel	

SBP = systolic blood in mmHg PR = pulse rate IHD=Ischaemic heart Disease
GI= gastrointestinal SRH= Stigmata recent Haemorrhage

448. A. Upper GI bleeding

Forrest score	Endoscopic appearance	Risk of rebleeding
Ia	Ulcer with active pulsating bleeding	55%
Ib	Ulcer with active nonpulsating bleeding	
IIa	Ulcer with a visible nonbleeding vessel	43%
IIb	Ulcer with an adherent clot	22%
IIc	Ulcer with hematin on ulcer base	10%
III	Ulcer with a clean base without signs of recent bleeding	5%

449. D. Subcutaneous nodules

In chronic liver disease due to decreased metabolism of estrogen- high estrogen levels causes palmar erythema. Spider naevi and testicular atrophy.

450. D. Metabolic acidosis

Precipitating factors for encephalopathy include-upper GI bleed, hypokalemia, hyponatremia, infection, stress, hypoxia, constipation, benzodiazepines and metabolic alkalosis (not metabolic acidosis).

451. D. Factor V estimation

Though the best prognostic marker is elevated prothrombin but here its not given.Factor V estimation will be the best answer.

452. A. Prothrombin time (PT)

Shortest half life is of coagulation factor VII hence PT will be elevated earliest.

453. D. Thyrotoxicosis

Thyrotoxicosis is not associated with flapping tremors.

454. C. The urine osmolality is lower than the plasma osmolality

Urine is concentrated in HRS hence urine osmolality will be more than plasma osmolality.

455. D. Animal fat in diet

The risk factors for HCC include- Hepatitis B, C, chronic cholestatic diseases, alcohol, alpha anti trypsin deficiency, hemochromatosis, aflatoxin.

456. A. Hepatocellular carcinoma

Elevated serum alpha feto protein is suggestive of HCC.

457. A. Hepatic vein obstruction

Budd chiari syndrome is due to hepatic vein thrombosis. Worldwide most common cause is myeloproliferative disorders. In India most common cause is idiopathic.

458. D. Venous collaterals

In acute Budd Chiari syndrome collaterals doesn't develop.

459. B. Increased ceruloplasmin

In Wilson disease there is increased serum and urine free copper levels. Serum ceruloplasmin and total copper levels are reduced. Liver copper is increased. Classical triad is involvement of liver, CNS and eyes.

460. C. Pronounced sensory changes

In Wilson disease sensory system is spared. In eyes sunflower cataract can be seen.Renal calculi have been reported in Wilson disease.

461. C. Menke disease

Wilson disease is due to ATP 7B mutation while Menke disease is due to ATP 7A mutation in which copper is not transported from gut mucosa into blood.

462. A. Hemochromatosis

These are typical features of hemochromatosis.

463. D. Eye

Most common organ affected in hemochromatosis is liver and least common out of these option is eyes.

464. B. Serum ferritin

As this is a case of hemochromatosis – screening test of choice will be UIBC(if not mentioned then % transferrin saturation)

465. D. Desferrioxamine is the treatment of choice

Treatment of choice in primary hemochromatosis is phlebotomy. Desferrixamine is not effective due to massive iron overload.

466. D. 8th

Most common space is 8 IC in mid clavicular line in full expiration to avoid lung damage.

467. C. GGT can be increased in fatty liver without obstruction.

ALT is more specific for liver injury than AST(other sites of AST are skeletal muscles, heart, kidney, RBC, brain). Absolute levels of aminotransferase doesn't corelate with outcome as release doesn't need necrosis. Fatty liver will have raised GGT even without obstruction.

468. A. Liver transplantation Milan criteria are apllied for consideration of liver transplant in patient of HCC or cirrhosis.

The threshold Milan criteria are as follows:

- one lesion smaller than 5 cm; alternatively, up to 3 lesions, each smaller than 3 cm
- no extrahepatic manifestations
- no evidence of gross vascular invasion

469. D. Serum albumin

Model for End stage Liver Disease score include- INR, S.Bilirubin and S. creatinine.

Gastroenterology

470. D. Cholestatic disorders

5' nucleotidase is a marker of obstructive liver disease.

471. A. Ulcerative colitis

Both UC and CD predispose to colonic cancer.Best option will be UC.

472. D. Albumin.

t1/2 of albumin is 21 days hence it will be reduced in chronic liver diseases not acute liver failure.

473. D. Chronic alcoholism

Causes of fatty liver are- alcoholic liver disease,non alcoholic fatty liver disease.Hepatitis C infection also causes fatty liver but less common finding than alcoholic liver disease.

474. D. bridging fibrosis

In NCPF liver parenchyma is not affected hence bridging necrosis is not a feature.

475. C. Hepatitis E virus

The most common cause of fulminant hepatitis in pregnancy is hepatitis E with a risk of 10-20%.

476. A. HLA-DQ2

HLA-DQ2 and HLA-DQ8 are seen in almost all patients of gluten sensitive enteropathy but its non specific.

477 D. Sinusoids

In cirrhosis nodules compress sinusoid leading to high sinusoidal pressure resulting in portal hypertension and ascites.

478. B. HbsAG and HbeAG positive

Presence of HbsAg and HbeAg represents infectivity.

479. B. Obesity

Obesity causes macrovesicular fatty liver.Rest other are causes of microvesicular fatty liver.

480. A. Endoscopic band ligation

Endoscopic band ligation is the definitive treatment for esophageal varices.

481. C. Anti-HBc IgM antibody

IgM anti hbc will confirm the diagnosis of acute hepatitis B infection.

482. D. Ulcerative colitis

Inflammatory bowel disease is associated with erythema nodosum(painful nodules on the shin)

483. D. Bleeding from small bowel from beyond ligament of Treitz

484. B. SGOT-SGPT ratio

Child -Pugh score include- ascites, encephalopathy, serum bilirubin, prothrombin time and serum albumin.

SECTION 1: Lupus disorders

485. A 30-year-old female presents with alopecia to a dermatology clinic. She also has pain in the joints for the past 6 months for which she is on NSAIDS. However, there is no deformity. She has no hematuria or dysuria. Urine analysis reveals 3+ proteinuria with granular cast. ANA by ELISA was positive. RA factor was negative. What is the most likely diagnosis:

a. SLE
b. Rheumatoid arthritis
c. Seronegative arthropathy
d. MCTD

486. Which of the following have been included in the immunological criteria for SLE (SLICC) Except:

a. ANA
b. Anti-dsDNA antibody
c. Anti-phospholipid antibody
d. Anti-Ro antibody

487. All of the following are known to cause drug induced Lupus except:

a. Captopril
b. Simvastatin
c. Interferons
d. Tacrolimus

488. A 44-year-old lady presents to the clinic with shortening of the digits in her hands. She has an history of pallor of extremities followed by pain and cyanosison exposure to cold during her adolescence. 6months back she had noticed puffiness of her fingers and face. ANA was positive with Nucleolar pattern of immunofluorescence. What is the likely diagnosis.

a. SLE
b. Localized SSc
c. Diffuse SSc
d. PAN

489. A 22-year female diagnosed as a case of SLE is on immunosuppression since the last 8 months. She is brought to the emergency department in altered sensorium with h/o convulsion. Which is/are the antibody associated with increased risk of above manifestation EXCEPT:

a. Anti- Neuronal antibody
b. Anti-Ribosomal P antibody
c. Anti- dsDNA
d. Anti-phospholipid antibody

490. Systemic sclerosis is characterized by following cardinal pathophysiological processes EXCEPT:

a. Vasospasm of arteries
b. Diffuse microangiopathy
c. Autoimmunity
d. Visceral fibrosis

491. The most common cause of death in systemic sclerosis is:

a. PAH
b. Renal crisis
c. Cardiac complications
d. ILD

492. The most common cause of late mortality in a patient of SLE is:

a. Renal Failure
b. Heart Failure
c. Infection
d. Bleeding

493. Suspected microorganism in etio- pathogenesis of systemic sclerosis is

a. EBV
b. CMV
c. Mycoplasma
d. Klebsiella

494. Which manifestation is more common in limited systemic sclerosis as compared with diffuse Ssc?

a. Skin involvement
b. Pulmonary fibrosis
c. Pulmonary artery HT
d. Esophageal dysmotility

495. A 42-year-old woman presents with retrosternal discomfort. She was diagnosed with systemic sclerosis one year back. Which of the following statements is true about systemic sclerosis?

a. Microstomia is only seen in diffuse cutaneous systemic sclerosis
b. Skin involvement is restricted to face, hands (distal to elbow) in limited systemic sclerosis
c. Anti-dsDNA are normally detected.
d. Raynaud's occurs due to skin sclerosis

496. All of the following about Diffuse SSc are true except:

a. Raynaud's phenomenon is seen years before skin changes
b. Trunk involvement
c. Anti-centromere antibodies are characteristic
d. Frequent systemic complains

497. Sicca syndrome is associated with all except:

a. Neoplasm
b. Primary biliary cirrhosis
c. Rheumatoid arthritis
d. Systemic sclerosis

498. The following statements are true regarding Sjogren's syndrome EXCEPT:

a. Primary Sjogren's is associated with increased risk of systemic manifestations
b. Secondary Sjogren's has increased risk of lymphoma
c. Elderly onset of disease has poorer prognosis
d. High SSA antibody titers is associated with increased risk of lymphoma

499. A middle-aged female presented with polyarthritis, oral ulcers and dryness of eyes. She is found to have elevated RF, and ANA levels. Anti-U1RNP is positive. What is the diagnosis:

a. SLE
b. RA
c. MCTD
d. RHUPUS

485. a	486. d	487. d	488. c	489. d	490. a	491. a	492. b	493. b	494. d	495. b
496. c	497. a	498. b	499. c							

500. Following drugs are approved for autoimmune crisis in SLE except

a. IV Methylprednisolone
b. Azathioprine
c. IV Rituximab
d. IV Belimumab

501. The following statements about the skin lesion shown in picture are true except:

a. This is seen in SLE patient
b. It is papulo-nodular
c. Painful rash
d. All are true statements

502. Which of thefollowing statements about Systemic sclerosis istrue EXCEPT:

a. Bilateral skin thickenening is the hallmark of the disease
b. In established SSc, Mask-like face" with loss of wrinkles can appear.
c. Nailbed capilloroscopycan reveal distorted nailbed capillary with micro-hemorrhages
d. Nailbed capillaroscopy cannot differentiate between primary and secondary Raynaud's phenomenon.

503. The most common neurological manifestation in SLE is

a. Myelitis
b. Neuropathy
c. convulsion
d. cognitive impairment

504. The following findings are associated with increased fetal loss during pregnancy in a SLE patient except:

a. Hypertension
b. Active nephritis
c. High complement levels
d. presence of Anti-phospholipid antibody

SECTION 2: Arthritis disorders

505. Sarilumab acts by one of the following mechanisms:

a. By blocking Tumor necrosis factor-Alpha
b. By blocking IL-1
c. By Inhibiting IL-6
d. By T-cell modulation.

506. A 36-year-old woman presents to the Rheumatology clinic with 2-month history of stiff joints and wrists. She reports that the pain is especially worse for the first few hours of the morning and is affecting her work as a dentist. On examination, the wrists, MCP and PIP joints are warm and swollen. Squeeze test is positive. Which of the following investigations is most specific for confirming the diagnosis:

a. X-rays
b. Rheumatoid factor levels (RAF)
c. Anti-Cyclic citrullinated peptide (CCP) levels
d. C-Reactive Protein (CRP)

507. A 50-year-old female recently diagnosed as a case of rheumatoid arthritis is referred to the rheumatology clinic for ongoing pain in her hands and feet. Which joints are usually spared at the onset of RA?

a. PIP
b. DIP
c. MCP
d. Wrists

508. Following statements about Tofacitinib are true except:

a. It is the first oral agent inhibiting the inflammatory cascade in RA
b. It acts by stimulation of JAK2
c. It is approved in India
d. It is also approved for the treatment of Psoriatic arthropathy

509. A 55 years old man presents to you with a 2-week history of pain in his hands. The pain is particularly bad in his right hand. On examination, brown discoloration of his nails with onycholysis is noted and the Distal interphalangeal joints are swollen and tender. What is the most likely diagnosis:

a. Rheumatoid arthritis
b. Dermatomyositis
c. Reactive arthritis
d. Psoriatic arthritis

510. A 76 year old man presents to emergency department with pain in his knees. He describes the pain as been worse at evening and after exertion. On examination, Heber dens nodules are palpable at the DIP. X-ray shows reduction in joint space, subchondral sclerosis and osteophyte formation. What is the most appropriate treatment.

a. Anti-TNF alpha therapy
b. NSAIDS and urgent Orthopaedic opinion
c. NSAIDS and regular follow-up
d. DMARD therapy

511. A 32-year-old man presents to emergency with a 1-day history of pain in the right knee joint. He also mentions that he has had a fever and is feeling unwell. On examination, the right knee is swollen, warm and extremely painful on movement. What is the most appropriate step in management:

a. Empirical Antibiotics
b. X-ray of Right Knee
c. Aspiration of the joint and blood cultures
d. Referral for physiotherapy

500. b	501. c	502. d	503. d	504. c	505. c	506. c	507. b	508. b	509. d	510. c
511. c										

512. 30-year-old female presents with 1-week history of both knee joints. The pain started with the right knee and involved the left in within a couple of days. Further history reveals that she had history for burning micturition 3 weeks back. Urine culture done twice were sterile. What is your diagnosis and probable causative organism.

a. Septic arthritis – E.Coli
b. Reactive arthritis – Chlamydia
c. Rheumatoid arthritis – Mycoplasma
d. Enteropathic arthritis – E.coli

513. A 74-year-old female presented with sudden onset pain and swelling in the left knee. On examination she is afebrile. X-ray shows chondrocalcinosis. Microscopic analysis of the synovial fluid is most likely to show:

a. Atypical mononuclear cells
b. Tophi
c. Rhomboidal, weakly positive refringent crystals under polarising microscopy
d. Needle shaped, strongly negative birefringent crystals under polarising microscopy

514. 30 years Male presents with inflammatory mono-arthritis affecting the right ankle joint. Which of the following is the first test to identify the diagnosis

a. Serum uric acid level
b. Serum calcium level
c. ESR, CRP
d. Synovial fluid aspiration.

515. HLA B27 is usually detected in the. following conditions, except:

a. Systematic lupus erythematosus
b. Ankylosing spondylitis
c. Psoriatic arthritis
d. Reactive arthritis

516. All of the statements about Rheumatoid factor in rheumatoid arthritis are true EXCEPT:

a. Titers of RA factor is associated with bad prognosis
b. It is an IgG type of antibody
c. It is themost common inrheumatoid arthritis
d. It is non-specific for the diagnosis of RA.

517. A 27-year-old male had burning micturition and urethral discharge. After 4 weeks he developed joint pains involving both the knees and ankles, redness of the eye and skin lesion, The most probable skin lesion is:

a. Oncholysis
b. Pyoderma gangrenosum
c. Keratoderma blemorrhagia
d. Erythema nodosum

518. Which one of the following is least likely to occur in late extra articular sero-positive rheumatoid arthritis?

a. Neutropenia
b. Dry-eye
c. Leg ulcers
d. Hepatitis

519. Which of the following disease is associated with the HLA B27 subtype?

a. Addison's disease
b. Myasthenia gravis
c. Reiter's syndrome
d. Psoriasis

520. All the following statements about Gouty arthritis are true except:

a. 90% caused by overproduction of Uric acid
b. Uric acid levels maybe normal at the time of acute attack
c. Men more likely affected than Females
d. Definitive diagnosis requires synovial fluid aspirate

521. The most common joint affected in Charcot's joint is:

a. Ankle
b. MTP joints
c. Talo-calcaneal joints
d. Knee joint

522. A 53-year Male comes with sudden onset severe pain in first metatarsophalangeal joint. He is a K/C/O gout. His laboratory investigations reveal HB – 9.8, Uric Acid – 11.2 and Creatinine -3.4mg/dl. What is the most appropriate treatment

a. Allopurinol
b. NSAIDS
c. Intra-articular steroids
d. Febuxostat

523. Which of the following statement about Fibromyalgia is True:

a. More common in Males
b. Sleep studies have shown disruption in REM sleep
c. Increased cortisol response to stress
d. SPECT studies show reduced blood flow to Thalamus

524. Feature of axial spondyloarthritis include all except

a. Enthesitis
b. Inflammatory bowel disease
c. Poor response to NSAIDS
d. Family history of spondyloarthropathy

SECTION 3: Vasculitis disorders

525. A 30- year old male patient presents with complaints of weakness in right upper and both lower limbs for last 4 months. He developed digital infarcts involving 2nd and 3rd fingers on right side and 5th finger on left side; On examination, at was 160/140 mm Hg, all peripheral pulses were palpable and there was asymmetrical neuropathy. Investigations showed Hb-12 gm. TLC12000 cumm, platelets 4,30,000, ESR-49mm. Urine examination showed proteinuria and RBC *10-15/***hpfwith no casts. which of the following is the most likely diagnosis?**

a. Polyarteritis nodosa
b. Systemic lupus erythematosus.
c. Wegener's granulomatosis
d. Mixed cryoglobulemia.

512. b	513. c	514. d	515. a	516. b	517. c	518. a	519. c	520. a	521. b	522. c
523. d	524. c	525. a								

526. The most common cause of cardiac death in children due to acquired heart disease is:

a. Takayasu disease
b. Mucocutaneous lymph node syndrome (Kawasaki disease)
c. Henoch Schoenlein purpura
d. Rheumatic heart disease

527. Characteristic of Anaphylactoid purpura is:

a. Blood in stool
b. Thrombocytopenia
c. Intracranial hemorrhage
d. Susceptibility to infection

528. A 20-year -old woman presents with bilateral conductive deafness, palpable purpura on thelegs and hemoptysis. Radiograph of the chest shows a thin-walled cavity in left lower zone. Investigation, reveal total leukocyte count 12,000/mm3. cell casts in the urine and serum creatinine 3mg/dl. What is the most probable diagnosis?

a. Henoch-Schonlein purpura
b. Microscopic Polyangitis
c. Wegener's granulomatosis
d. Goodpasture's syndrome

529. An 18-yr-old girl presents with chronic diarrhea, weight loss and post prandial abdominal pain. On examination, her BP was 160/100mm of Hg. USG of the Abdomen was inconclusive. Antinuclear antibodies and anti-endomysial antibody were negative. The most likely diagnosis is:

a. Gluten-sensitive enteropathy
b. Polyarteritis nodosa
c. Takayasu's arteries
d. Systemic lupus erythematosus (SLE)

530. Canakinumab is directed against:

a. Tumor necrosis factar-a (TNF-a)
b. Interleukin-l (lL-I)
c. Interleukin -12 (IL-12)
d. Intercellular adhesion molecule (ICAM)

531. The most likely diagnosis in the care of patient with multiple pulmonary cavities, haeumaturia and red cell casts is:

a. Anti GBM disease
b. Eosinophilic granulomatosis with polyangiiitis
c. Systematic lupus erythematosus
d. Chronic granulomatous polyangiitis

532. Which one of the following auto-antibodies is most specific for Wegener's granulomatosis?

a. Anti-myeloperoxidase
b. Antinuclear antibody (ANA)
c. Antidouble stranded DNA antibody (anti ds DNA)
d. Anti-proteinase 3

533. A 70-year-old female presents with complaints of severe unilateral headache on left side of the head. She also gives a history of bilateral shoulder and neck pain over past few months. On examination, there is left scalp tenderness. What is the ideal screening test & diagnosis

a. CPK levels – Polymyositis
b. ESR – Giant cell arteritis
c. ANA – SLE
d. Clinical evaluation for Migraine

534. Bechet's syndrome is characterised by all except:

a. Myocarditis
b. Erythema Nodosum
c. Oral and genital ulcers
d. Thrombophlebitis

535. Which of the following is most commonly involved in Hypersensitivity Vasculitis:

a. Capillaries
b. Arterioles
c. Post-capillary venules
d. Medium sized arteries

536. c-ANCA positivity indicates antibody formed against:

a. Proteinase 3
b. Myeloperoxidase
c. Cytoplasmic Anti-Nuclear antibody
d. Anti-centromere antibody

537. All of the following are associated with Granulomatous Pathology except:

a. Wegener's Granulomatosis
b. Takayasu's
c. PAN
d. Giant cell arteritis

538. Wegener's Granulomatosis does not effect

a. Lung
b. Liver
c. Kidney
d. Eyes

539. A 24-year-old male with Abdominal pain, rashes and palpable purpura with arthritis. Most probable diagnosis

a. HSP
b. Sweet syndrome
c. Hemochromatosis
d. Porphyria

526. b	527. a	528. c	529. c	530. b	531. d	532. d	533. b	534. a	535. c	536. a
537. c	538. b	539. a								

SECTION 1: Lupus Disorders

485. A. SLE

SLE – SLICC criteria for diagnosis of SLE.

SYNOVITIS IS INCLUDED IN NEW HARRISON IN SLICC CRITERIA.

TABLE 349-3:Systemic Lupus International Collaborating Clinic Criteria for SLE.

Clinical Manifestations:

1. Cutaneous :
   a. Acute, subacute cutaneous LE (photosensitive, malar, maculopapular, bullous)
   b. Chronic cutaneous LE (discoid lupus, panniculitis, lichen planus-like, hypertrophic verrucous, chillblains)
2. Oral or nasal ulcers
3. Nonscarring Alopecia
4. Synovitis involving ≥2 joints
5. Serositis (pleurisy, pericarditis)
6. Renal:Prot/Cr ≥0.5; RBC casts; Biopsy showing Anti-dsDNA deposits on GBM.
7. Neurologic: Seizures, psychosis, mononeuritis, myelitis, peripheral or cranial neuropathies, acute confusional state .
8. Hemolytic anemia
9. Leukopenia (<4000/μL) or Lymphopenia (<1000/μL)
10. Thrombocytopenia (<100,000/μL)

Immunological Criteria:

1. ANA
2. Anti-sm
3. Anti-dsDNA
4. Low Complement levels
5. Direct coomb's test +ve
6. Anti-phospholipid antibody

Ref: Harrison 20th edition - Chapter 349; pg. 6123

486. D. Anti-Ro antibody

Ref: Harrison 20th edition - Chapter 349; pg. 6123: TABLE 349-3

Systemic Lupus International Collaborating Clinic Criteria for SLE. (as above)

487. D. Tacrolimus.

DRUG INDUCED LUPUS (DIL) :

This is a syndrome of positive ANA associated with symptoms such as fever, malaise, arthritis or intense arthralgias/myalgias, serositis, and/or rash. The syndrome appears during therapy with certain medications and biologic agents, is predominant in whites, has less female predilection than SLE, rarely involves kidneys or brain, is rarely associated with anti-dsDNA, is commonly associated with antibodies to histones, and usually resolves over several weeks of discontinuation of the offending medication.

The list of substances that can induce lupus-like disease is long.

Among the most frequent are the antiarrhythmics procainamide, disopyramide, and propafenone; the antihypertensive hydralazine; several angiotensin-converting enzyme inhibitors and beta blockers; the antithyroid propylthiouracil; the antipsychotics chlorpromazine and lithium; the anticonvulsants carbamazepine and phenytoin; the antibiotics isoniazid, minocycline, and nitrofurantoin (Macrodantin); the antirheumatic sulfasalazine; the diuretic hydrochlorothiazide; the antihyperlipidemics lovastatin and simvastatin.

Biologics that can cause drug-induced lupus (DIL) include inhibitors of IFNs and TNF.

Proton pump inhibitors have also been implicated in DIL

Ref: Harrison 20th edition – Chapter 349; pg. 6140

488. C. Diffuse SSc.

The clinical history is suggestive of systemic sclerosis. The type of SSc is difficult to predict based on features alone, hence the answer is based on the pattern of IF.Nucleolar pattern of ANA IF correlates with Anti-topoisomerase 1 antibody.

Ref: Harrison 20th edition – Chapter 353; pg. 6185: Table 353-3.

Features	Limited Cutaneous SSc	Diffuse cutaneous SSc
Skin involvement	Indolent onset. Limited to fingers distal to elbows, face, slow progression	Rapid onset Diffuse: Fingers, extremities face, trunk ; rapid progression
Raynaud's phenomenon	Precedes skin involvement; associated with critical ischemia	Onset coincident with skin involvement may be mild
Musculoskeletal	Early arthralgia , fatigue	Severe arthralgia, carpal tunnel syndrome tendon friction rubs
Pulmonary arterial hypertension	Frequent, late, may be isolated	May occur often in association with pulmonary fibrosis
Scleroderma renal crisis	Very rare	Occurs in 15% early
Calcinosis cutis	Frequent prominent	May occur mild
Characteristic autoantibodies	Anticentromere	Antitopoisomerase I (ScL – 70) anti RNA polymerase III

489. D. Anti-phospholipid antibody

Anti-Phospholipid antibody is associated with risk of Vascular thrombosis and recurrent fetal loss.

Question gives neuro-psychiatric presentation of SLE which may be related to presence of Anti-dsDNA antibody, Anti-neuronal and Anti-ribosomal P antibody.

Ref: Harrison 20th edition – Chapter 349; pg.6134

490. A. vasospasm of arteries

Vasospasm causing Raynaud's phenomenon Three cardinal pathomechanistic processes underlie the protean clinical manifestations of SSc: (1) diffuse microangiopathy, (2) inflammation and autoimmunity, and (3) visceral and vascular fibrosis in multiple organs.

Ref: Harrison 20th edition – Chapter 353; pg.6188

491. A. PAH

Major causes of death are PAH, pulmonary fibrosis, gastrointestinal involvement, and cardiac disease. The severity of PAH predicts mortality, and patients with mean pulmonary arterial pressure ≥45 mmHg had a 33% 3-year survival. The advent of ACE inhibitors in scleroderma renal crisis had a dramatic impact on survival, increasing from <10% at 1 year in the pre–ACE inhibitor era to >70% 3-year survival at the present time.
Ref:Harrison 20th edition – Chapter 353; pg.6221

492. B. Heart Failure

The most common cause of late mortality in a patient of SLE is Heart failure.
Acute mortality occurs due to renal failure, neuro-psychiatric features and coagulopathy.
Ref: Harrison 20th edition – Chapter 349; pg. 2519

493. B. CMV

Ref: Harrison 20th edition – Chapter 353; pg.6192

Infections	Auto-immune disease
EBV	SLE
CMV, Parvo B19	Scleroderma
Mycoplasma, EBV	RA

494. D. Esophageal dysmotility

Esophageal dysmotility (refer to nest page table)
Ref: Harrison 20th edition – Chapter 353; pg.6220

Features	Limited Cutaneous SSc	Diffuse cutaneous SSc
Skin involvement	90[a]	100
Raynaud's phenomenon	99	98
Esophageal involement	90	80
Pulmonary fibrosis	35	65
Pulmonary arterial hypertension	15	15
Myopathy	11	23
Cardiac involement	9	12
Scleroderma renal crisis	2	15

[a]Approximately 10% of limited cutaneous SSc patients have SSc sine scleroderma.

495. B. Skin involvement is restricted to face, hands (distal to elbow) in limited systemic sclerosis

Ref: Harrison 20th edition – Chapter 353; pg.6221

496. C. Anti-centromere antibodies are characteristic

Ref: Harrison 20th edition – Chapter 353; pg.6221

497. A. Neoplasm

Ref: Harrison 20th edition – Chapter 353; pg.6221

498. B. Secondary Sjogren's has increased risk of lymphoma

Ref: Harrison 20th edition – Chapter 353; pg.6221

499. C. MCTD

Ref: Harrison 20th edition – Chapter 353; pg.6221

500. B. Azathioprine

Ref: Harrison 20th edition – Chapter 353; pg.6221

501. C. Painful rash

The image shows Discoid rash – which is a chronic, papulo-nodular, painless lesion seen over the neck, scalp area.

502. D. Nailbed capillaroscopy cannot differentiate between primary and secondary Raynaud's phenomenon.

Nailbed capillary study can differentiate between primary Raynaud's phenomenon and help in early diagnosis of SSc.
Chapter 353, pg. 2553

503. D. cognitive impairment is seen in 50% of SLE patients.

Neuropathy and convulsions occur in 20 and 15% respectively. Myelopathy is least common feature seen in <1% of SLE patients.
Harrison pg. 2520 table 349-4

504. C. convulsion

The risk of fetal loss in SLE is associate with active disease (C3 levels are low), hypertension, presence of anti-phospholipid antibodies and active nephritis.
Harriosn pg. 2524 , chapter 349

SECTION 2: Arthritis disorders

505. C. By Inhibiting IL-6

Biologicals are drugs derived from live cell culture. These agents are useful in variety of disorders amongst which inflammatory arthritis is an important indication. For RA, following agents are approved at present with the mechanism of action.

Mechanism of action	Agents approved for RA
Anti-TNF-Alpha action	Etarnacept, Infliximab, Adalimumab, Golimumab, Certolizumab
IL-1 antagonist	Anakinra
IL-6 antagonist	Tocilizumab, Sarilumab
T-cell modulator	Abatacept
B-cell inhibitor	Rituximab
JAK inhibitor (Small peptides)	Tofacitinib (NOT A BIOLOGICAL)

Ref: Harrison 20th edition - Chapter 351; pg.6164

506. C. Anti-Cyclic citrullinated peptide (CCP) levels

Anti-Cyclic citrullinated peptide (CCP) levels is the most specific antibody for the diagnosis of RA.
Serology: Rheumatoid factors (autoantibodies reactive with the Fc portion of IgG): Widely utilized tests mainly detect IgM rheumatoid factors. Sensitive test but non-specific.
False positive RA factor: Systemic lupus erythematosus, Sjogren's syndrome, chronic liver disease, sarcoidosis, interstitial pulmonary fibrosis, infectious mononucleosis, hepatitis B, tuberculosis, leprosy, syphilis, subacute bacterial endocarditis, visceral leishmaniasis, schistosomiasis, and malaria.

Classification Criteria For Rheumatoid Arthritis		
		Score
Joint involvement	1 large joint (shoulder, elbow, hip, knee, ankle)	0
	2-10 large joints	1
	1 -3 small joints (MCP, PIP, thumb IP, MTP, wrists)	2
	4-10 small joints	3
	>10 joints (at least 1 small joint)	5
Serology	Negative RF and negative ACPA	0
	Low-positive RF or low-positive anti-CCP antibodies (<3 times ULN)	2
	High-positive RF or high-positive anti-CCP antibodies (>3 times ULN)	3
Acute-phase reactants	Normal CRP and normal ESR	0
	Abnormal CRP or abnormal ESR	1
Duration of symptoms	<6 weeks	0
	>6 weeks	1

Note: These criteria are aimed at classification of newly presenting patients who have at least one joint with definite clinical synovitis that is not better explained by another disease. A score of >6 fulfills requirements for definite RA

Abbreviations: ACPA, anti-citrullinated peptide antibodies. CCP, cyclic cltrullinated peptides; CRP C-reactive protein; ESR, erythrocyte sedimentation rate; IP, interphalangeal joint; MCP, metacarpophalangeal joint; MTP metatarsophalangeal joint; PIP, proximal interphalangeal joint; RF, rheumatoid factor; ULN, upper limit of normal

507. B. DIP

In RA, DIP involvement is extremely rare and even if it occurs, it indicates advanced stage of disease. Early DIP involvement suggests Psoriatic arthropathy or in an elderly suggests OA. Chapter 355 – pg.2568

508. B. It acts by stimulation of JAK2

Tofacitinib is the first oral agent inhibiting inflammatory cascade in RA approved in India. It inhibits JAK2 (Janus associated kinases) which are intracellular signaling pathways for inflammation. In 2017, it is also approved for the treatment of Psoriatic arthropathy.

509. D. Psoriatic arthritis

Psoriatic arthritis – Spondyloarthropathy with Skin and Nail changes.

Spondylo-arthropathies are a group of arthropathies sharing following common features:

1. HLA-B27+ve
2. Axial involvement
3. Seronegative (RAFactor negative)
4. Primary site of joint involvement is Enthesis(junction between bone and tendon).
5. NSAID have excellent response and hence, the first ;ine of treatment.
6. Predominant symptom is extra-articular.

Chapter 355 – pg.2568

510. C. NSAIDS and regular follow-up

NSAIDS and regular follow-up. The patient is suffering from OA. Worsening of joint pain after exertion is typical of degenerative arthritis.

511. C. Aspiration of the joint and blood cultures

The patient has inflammatory mono-arthritis. The most common cause is Trauma. In absence of a history of injury, Septic arthritis and Gout are the possible diagnosis. Both require mandatory analysis of synovial Fluid before initiating treatment. Hence, Aspiration of the joint and blood cultures is the correct management.

512. B. Reactive arthritis – Chlamydia

Chapter 355 – pg.2568

513. C. Rhomboidal, weakly positive refringent crystals under polarising microscopy

Rhomboidal, weakly positive birefringent crystals under polarising microscopy

The patient has Pseudo-Gout. Needle shaped, strongly negative birefringent crystals under polarising microscopy are characteristic of Gout.

514. D. Synovial fluid aspiration.

Inflammatory mono-arthritis is most commonly caused due to trauma. In absence of history of trauma, it is ckinically impossible to differentiate between gout and septic arthritis. Hence, synovial fluid aspirate is the initial test to confirm diagnosis.

515. A. Systematic lupus erythematosus

Refer to common features of Spondyloarthropathies. (Ans.5)

516. B. It is an IgG type of antibody

RA Factor is an IgM type of antibody directed against the Fc portion of IgG. It is non-specific for RA but it the most common antibody forund in RA. Titers of RAF also is associated with increased risk of bone erosions, hence prognostic.

517. C. Keratoderma blemorrhagia

The patient is suffering from reactive arthritis. The most specific skin manifestation is keratoderma blenorhhagia.

518. A. Neutropenia

Neutropenia was previously part of the hematological involvement in RA (Felty's syndrome) However due to early DMAMRD therapy, neutropenia is seen in <1% of advanced RA patients only.

519. C. Reiter's syndrome

HLA-B27 are typical in spondyloarthropathies.

520. A. 90% caused by overproduction of Uric acid

90% caused by overproduction of Uric acid is wrong since majority cases occur because of renal defect in urate excretion. 10-20% are only due to exogenous causes like diet/drugs. It is a male dominant syndrome affecting middle-aged males. Serum uric acid testing is a screening test. But confirmation requires mandatory synovial fluid analysis.

521. B. MTP joints

The most common joint affected in Charcot's joint is (b) MTP joints

522. C. Intra-articular steroids

Intra-articular steroids. Treatment of acute Gout in renal failure.

523. D. SPECT studies show reduced blood flow to Thalamus

Fibromyalgia is a pain sensitivity syndrome affecting middle aged females and related to stress. However, MR spectroscopy has revealed a reduced blood flow to the thalamus as the cause of the aches and pains which last for duration > 3 months. Sleep studies reveals disruption of NREM sleep and reduced cortisol response to stress. Treatment is by neuralgic pain stabilisers like Pregabalin, Gabapentin, TCA's and SSRI's.

524. C. Poor response to NSAIDS

SECTION 3: Vasculitis disorders

525. A. Polyarteritis nodosa

PAN (Also called Systemic Necrotizing vasculitis).

Vasculitis are a group of disorders characterized by skin and other organ involvement. PAN is an immune complex mediated medium vessel vasculitis which can mimic other autoimmune conditions like SLE, Systemic sclerosis and Sjogren's syndrome because of Skin, neuropathy and renal involvement. However, PAN is ANA and ANCA negative. Also, Hematuria without cast (without Glomerulonephritis) is pathognomonic of PAN. It is idiopathic in majority and affects young males.

As given in the question, Weakness with asymmetric neuropathy is suggestive of Mono-neuritis multiplex which can occur in all of the above-mentioned diseases. Digital infarct is the most common dermatological feature of PAN. But the hematuria without GN is diagnostic here.

Ref: Harrison 20th edition – Chapter 356; pg. 6281

526. B. Mucocutaneous lymph node syndrome (Kawasaki disease)

Kawasaki's has replaced RHD as the most common cause of death due to coronary aneurysm thrombosis/ rupture. Kawasaki's is the most common vasculitis in children below 5 years of age. The diagnosis is clinical and prompt treatment with IVIG reduces risk of coronary involvement.

Note: Coronary involvement can also occur in Takayasu's arteritis and Bechet's disease.

Ref: Harrison 20th edition – Chapter 356; pg.6295

527. A. Blood in stool

Henoch–Schönlein purpura also known as IgA vasculitis, anaphylactoid purpura, purpura rheumatica, and Schönlein–Henoch purpura, is a disease of the skin, mucous membranes, and sometimes other organs that most commonly affects children below 10 years of age with a male preponderance. In the skin, the disease causes palpable purpura (small, raised areas of bleeding underneath the skin) distributed over the lower limbs and buttocks, often with joint pain.

Gastrointestinal involvement, which is seen in almost 70% of pediatric patients, is characterized by colicky abdominal pain usually associated with nausea, vomiting, diarrhea, or constipation, and is frequently accompanied by the **passage of blood and mucus per rectum**; bowel intussusception may occur. Renal involvement occurs in 10–50% of patients and is usually characterized by mild glomerulonephritis leading to proteinuria and microscopic hematuria, with red blood cell casts in the majority of patients; it usually resolves spontaneously without therapy.

HSP is often preceded by an infection, such as a throat infection.

Ref:Harrison 20th edition – Chapter 356; pg. 6289

528. C. Wegener's granulomatosis.

Lung and renal involvement together constitute a Pulmonary renal syndrome. The D/D are: Goodpasture's syndrome, Wegener's, Churg Strauss, Microscopic polyangiitis and HSP.

Goodpasture's is restricted to lung and kidney involvement alone. Presence of other organ involvement indicates vasculitis. Among the vasculitis, the clinical features given in the question favor URT involvement(Serous otitis media) and the presence of thin walled cavities is path gnomic of Wegener's granulomatosis.

MPA is unlikely to have URT involvement and Churg Strauss presents with asthma and not cavities.

Ref:Harrison 20th edition – Chapter ; pg.

529. C. Takayasu's arteries

Takayasu's arteritis (Aortic arch syndrome) affects young females. Subclavian is most commonly affected leading to UL claudication. However, all direct branches of Aorta maybe affected in the disease. The GI symptoms are suggestive of chronic mesenteric ischemia due to coeliac artery involvement. Elevate BP maybe related to Renal artery stenosis. Antibody for celiac disease is negative. PAN can cause abdominal pain due to gonadal artery involvement which can mimic torsion, but not diarrhea. Hence, best answer is Takayasu's arteritis.

Ref: Harrison 20th edition – Chapter ; pg.

530. B. Interleukin-I (IL-I)

IL-1 Beta. Human Monoclonal antibody causing inhibition of interleukin (IL)-1 Beta and improves monogenic autoinflammatory diseases characterized by flares of recurrent fevers.

Infection was the most common adverse outcome, with few being serious.

531. D. Chronic granulomatous polyangiitis

The description is of Pulmonary renal syndrome. But lung cavities are pathognomic of wegener's granulomatosis (also called Chronic granulomatous polyangiitis).

Chapter 356 pg.2578

532. D. Anti-proteinase 3

Anti-PR3 (previously called cANCA) is the most specific antibody for Wegener's.

Chapter 356, pg. 2578

533. B. ESR – Giant cell arteritis

Giant cell arteritis is a large vessel vasculitis affecting

branches of carotid artery. The superficial temporal artery is most commonly affected causing throbbing headache which mimics migraine.

534. A. Myocarditis

Diagnostic criteria for Bechet's disease :
Recurrent oral ulceration plus two of the following:
1. Recurrent genital ulceration
2. Eye lesions (bilateral hypopyon formation)
3. Skin lesions (erythema nodosum)
4. Pathergy test
5. recurrent superficial thrombhophlebitis.

535. C. Post-capillary venules

536. A. Proteinase 3

c-ANCA positivity indicates antibody formed against Proteinase 3 (PR3).

537. C. PAN

PAN is an immune complex mediated vasculitis.
Granulomatous (T-cell mediated) vasculitis include:
1. Giant cell arteritis
2. Takayasu's arteritis
3. Wegener's granulomatosis
4. Churg Strauss syndrome

538. B. Liver

Wegener's can cause upper respiratory involvement, pulmonary and renal disease (mimics Goodpasture's) It can also cause purpuric rash which can mimic HSP. Eye involvement in the form of Pan-uveatis is rare but possible in Wegener's.

539. A. HSP

Endocrinology
Diabetes

540. Which of the following statements is true for type 1 diabetes?

a. It is an autoimmune disease.
b. It is insulin dependent diabetes
c. It is not associated with thyroid disorders
d. Insulin resistance is the hallmark of the disease pathogenesis

541. In diabetes all of the following statement are correct EXCEPT

a. Recognised endocrine causes of diabetes include acromegaly and cushing's syndrome
b. The majority of type 2 diabetes mellitus patients die from cardiovascular disease
c. Fasting blood sugar more than 126 establishes diagnosis of diabetes
d. Patients with type 2 diabetes are more prone to ketoacidosis as compared to type 1

542. A 52 year old female patient is suffering from type 2 diabetes mellitus and hypertension. Which of the following antihypertensive drug should not be used in such patients?

a. Lisinopril
b. Hydrocholrthiazide
c. Losartan
d. Enalapril

543. Which of the following is not a test for diabetes mellitus?

a. Fasting blood sugar
b. Random blood sugar
c. D-Xylose test
d. Fructossamine assay

544. Which of the following findings can establish a diagnosis of diabetes mellitus?

a. Fasting plasma glucose > 100 mg/dl and 2 hour post-prandial more than 140 mg/dl
b. Fasting plasma glucose > 125 mg/dl and 2 hour post-prandial more than 199 mg/dl
c. Symptoms of diabetes plus random blood glucose of 190 mg/dl
d. Glycosylated haemoglobin > 6.5%

545. Impaired glucose tolerance on an oral GTT is indicated by

a. Fasting plasma sugar > 126 mg/dl
b. Random blood sugar > 200 mg/dl
c. Fasting blood sugar < 140 mg/dl and 2 hours after glucose load < 200 mg/dl
d. 2 hours after glucose load 140-199 mg/dl, fasting blood sugar < 125 mg/dl

546. All are seen in DKA except

a. Bradycardia
b. Kussmaul's breathing
c. Abdominal pain
d. Dehydration

547. Increased anion gap in DKA is due to

a. Loss of H+ ions in urine
b. Loss of HCO3- ions in urine
c. Excess of H+ ions combines with HCO3-
d. Loss of Cl- ions in urine

548. A 36 year old male who is a known case of type 1 diabetes brought to casualty in semicomatose state and with history of fever since last 1 week. Blood tests showed glucose- 400 mg/dl, potassium- 5.8 meq/lit, serum osmolality- 310 mOsm/lit, plasma ketones +++, arterial pH- 6.8. What is the most probable diagnosis?

a. Hyperosmolar hyperglycemic state
b. Diabetic ketoacidosis
c. Meningitis
d. Hypoosmoloar hyperglycemic state

549. A 59 year old male who is a known case of type 2 diabetes brought to casualty in semicomatose state and with history of fever since last 1 week. Blood tests showed glucose- 800 mg/dl, potassium- 4.6 meq/lit, serum osmolality- 350 mOsm/lit, plasma ketones, arterial pH- 6.8. What is the most probable diagnosis?

a. Hyperosmolar hyperglycemic state
b. Diabetic ketoacidosis
c. Meningitis
d. Hypoosmoloar hyperglycemic state

550. The drug of choice in a 50 year old patient presenting with hyperglycemia and ketoacidosis is?

a. Oral hypoglycemic agent
b. Lente insulin
c. Oral drugs with intermediate acting insulin
d. Regular insulin

551. All of the following statements about diabetic ketoacidosis are true EXCEPT:

a. DKA is commoner in type 1
b. Anion gap increases
c. Serum pH < 7.4
d. Serum bicarbonate in DKA is > 15 meq/L

552. If a patient with severe hyperglycemia is given iv insulin, which of the following can occur?

a. Hypokalemia
b. Hyperkalemia
c. Hyponatremia
d. Hypernatremia

553. Which of the following statements about dawn phenomenon is true?

a. Morning hyperglycemia with midnight hypoglycaemia
b. Morning hypoglycaemia with midnight hyperglycemia
c. Morning hyperglycemia with midnight hyperglycemia
d. Morning hypoglycaemia due to excess insulin

540. a	541. d	542. b	543. c	544. d	545. d	546. a	547. c	548. b	549. a	550. d
551. d	552. a	553. c							

554. The characteristic and common presentation of diabetic neuropathy is:
a. Amyotrophy
b. Mononeuropathy
c. Symmetric sensory neuropathy
d. Autonomic neuropathy

555. The most characteristic finding in diabetic nephropathy is:
a. Diffuse glomerulosclerosis
b. Nodular glomerulosclerosis
c. Armani-Ebstein reaction
d. Fibrin caps

556. A patient presents with symptoms of hypoglycaemia investigations reveal decreased blood glucose and increased insulin levels. C-peptide assay is done which shows normal level of C-peptide. The most likely diagnosis is
a. Insulinoma
b. Accidental sulfonylurea ingestion
c. Accidental exogenous insulin administration
d. Accidental metformin ingestion

557. Which type of diabetes is HLA associated:
a. Type I diabetes
b. Type II diabetes.
c. Malnutrition related type disease
d. Pregnancy related type diabetes

558. A 50 year old male with type 2 diabetes mellitus is found to have 24-hour urinary albumin of 250 mg. Which of the following drugs may be used to retard progression of renal disease?
a. Hydrochlorothiazide
b. Enalapril
c. Amiloride
d. Aspirin

559. Consider the following features:
1. Severe dehydration
2. Blood sugar above 750mg%
3. Ketonuria
4. Serum sodium less than 120 mEq/L
Which of these features are characteristic of hyperosmolar hyperglycemic state?
a. 1, 2, 3 and 4
b. 1 and 2
c. 2 and 3
d. 1,3 and 4

Parathyroid

560. Most common cause of primary hyperparathyroidism is
a. Parathyroid adenoma
b. Chief cell hyperplasia
c. Multiple adenoma
d. Parathyroid carcinoma

561. Which of the following is associated with secondary hyperparathyroidism due to dietary deficiency of calcium?
a. Hypercalcemia
b. Hyperphosphatemia
c. Increased c-AMP in urine
d. Decreased hydroxyproline in urine

562. Increased calcium with decreased phosphate levels are seen in?
a. Primary hyperparathyroidism
b. Secondary hyperparathyroidism due to vitamin D deficiency
c. Malignancy with lytic bone lesions
d. Osteoporosis

563. A 40 year old man known case of chronic renal failure develops rugger jersey spine. The probable cause is-
a. Aluminium intoxication
b. Secondary hyperparathyroidism
c. Osteoporosis
d. Osteomalacia

564. In hyperparathyroidism all are seen in except
a. Osteopetrosis
b. Osteoporosis
c. Cysts
d. Brown tumor

565. Primary hyperparathyroidism is suggested by all of the following except
a. Increased serum calcium
b. Low urinary calcium
c. Increased PTH
d. Increased C-AMP

566. Low calcium and high phosphate is seen in-
a. Hyperparathyroidism
b. Hypoparathyroidism
c. Hyperthyroidism
d. Hypothyroidism

567. Which of the following is not a feature of hypercalcemia
a. Diarrhoea
b. Polyuria
c. Depression
d. Vomiting

568. A 75 year old lady with fracture neck of femur presents with two days history altered sensorium and decreased urinary output. Serum calcium is 15.5 mg/dl, urea is 140 mg/dl, creatinine is 2 mg/dl. All of the following are useful for immediate, management of hypercalcemia, Except;
a. Normal saline
b. Furosemide
c. Dialysis
d. Bisphosphonates

569. A 30 year old male came with history of numbness and tingling sensations of perioral area. On general examination no skeletal deformity detected. Blood investigations are- serum calcium 6.5 mg/dl, serum phosphate level- 6 mg/dl, serum parathyroid level increased, response of urinary C-AMP to PTH is decreased. What is the most probable diagnosis?
a. Pseudohypoparathyroidism Ia
b. Pseudohypoparathyroidism Ib
c. Pseudohypoparathyroidism 2
d. Pseudopseudohypoparathyroidism

554. c	555. b	556. c	557. a	558. b	559. b	560. a	561. c	562. a	563. b	564. a
565. b	566. b	567. a	568. d	569. b						

570. A 30 year old male came with history of numbness and tingling sensations of perioral area. On general examination no skeletal deformity detected. Blood investigations are- serum calcium 6.5 mg/dl, serum phosphate level- 6 mg/dl, serum parathyroid level is increased, response of urinary C-AMP to PTH is normal. What is the most probable diagnosis?

a. Pseudohypoparathyroidism Ia
b. Pseudohypoparathyroidism Ib
c. Pseudohypoparathyroidism 2
d. Pseudopseudohypoparathyroidism

571. Hypercalcemia associated with malignancy is most often mediated by

a. Parathyroid hormone related protein
b. Parathyroid hormone
c. Interleukin-6
d. Calcitonin

572. Parenchyma of 'parathyroid' cell, incorporated with;

a. Chief cells
b. Oxyphil cells
c. Parietal cells
d. Both A and B

573. All of the following are seen in tumor lysis syndrome except?

a. Hyperphosphatemia
b. Hyperkalemia
c. Hyperuricemia
d. Hypercalcemia

574. All of the following are indications for haemodialysis in tumor lysis syndrome except

a. Serum potassium > 10 meq/L
b. Serum creatinine > 10 mg/dl
c. Serum uric acid > 10 mg/dl
d. Serum phosphate > 10 mg/dl

Thyroid

575. Which of the following conditions is associated with hypothyroidism?

a. Hashimoto's thyroiditis
b. Grave's disease
c. Toxic multinodular goiter
d. Solitary toxic thyroid nodule

576. Which of the following is not associated with primary hypothyroidism?

a. Low T3
b. High TSH
c. Low T4
d. Low cholesterol

577. The most common cause of hyperthyroidism is

a. Thyroid hyperplasia
b. Thyroid adenoma
c. Thyroid carcinoma
d. Grave disease

578. All of the following are features of hypothyroidism except

a. Carpel tunnel syndrome
b. Serous cavity effusion
c. Gynecomastia
d. Alopecia

579. All of the following are features of thyrotoxicosis except

a. Loss of libido
b. Paresthesia
c. Polyuria
d. Moist skin

580. The best marker to diagnose thyroid related disorder is?

a. TSH
b. T3
c. T4
d. Thyroglobulin

581. Lab investigation of patient shows ↓T3, ↓T4, ↓TSH. It suggests-

a. Primary hypothyroidism
b. Secondary hypothyroidism
c. Primary hyperthyroidism
d. Secondary hyperthyroidism

582. The occurrence of hyperthyroidism following administration of supplemental iodine to subjects with endemic iodine deficiency goiter is known as-

a. Jod-basedow phenomenon
b. Wolff-Chaokoff effect
c. Thyrotoxicosis factitia
d. De Quervain's thyroiditis

583. Decreased iodine uptake is seen in

a. Dequervain's thyroiditis
b. Grave's disease
c. Toxic nodule
d. Toxic multinodular goiter

584. Life threatening exacerbation of hyperthyroidism accompanied by fever, delirium, coma, vomiting, diarrhoea, jaundice is called as-

a. Thyrotoxicosis
b. Sick euthyroid syndrome
c. Thyrotoxic crisis
d. Myxedema coma

585. How is hypothyroidism treated?

a. With radiation
b. With surgery
c. With a synthetic hormone
d. The condition can't be treated

586. Hypothyroidism treatment is best monitored by?

a. TSH
b. Free T3
c. Free T4
d. Radioiodine assay

570. b	571. a	572. d	573. d	574. a	575. a	576. d	577. d	578. c	579. b	580. a
581. b	582. a	583. a	584. c	585. c	586. a					

587.

A 34 year old man reports to your office complaining of weight loss and sweating. Among other findings you note the following, while examining his extraocular movements: What do we call this finding?

a. Proptosis
b. Ophthalmoplegia
c. Lid lag
d. Trochlear nerve palsy

588. **A 35 year old woman, who was 2 months pregnant, was found to have FT4 of 3.3 ng/dL (normal 0.9-2) and TSH < 0.01 IU/mL (normal 0.5-4.7) during a follow up visit. Which of the following drug treatment would be most appropriate for this patient?**

a. Radioactive iodine
b. Propranolol
c. Potassium iodide
d. Propylthiouracil

589. **A 75-year-old woman came to the clinic for her regular checkup. Her only complaints included very dry skin and constipation which she treats with milk of magnesia. She had no other medical problems and took no other medications. Routine laboratory tests are within normal limits except for a TSH of 15 mIU/mL (normal 0.5-5.5). Further lab exams indicated the presence of thyroid peroxidase antibodies. Which of the following drug would be appropriate for this patient?**

a. Potassium iodide
b. Propranolol
c. Methimazole
d. Levothyroxine

590. **A 30 year old woman presented with secondary amennorhea for 3 years along with galactorrhea.The most likely her symptoms would be due to:**

a. Cranipharyngioma.
b. Prolactinoma.
c. Meningioma.
d. SAH.

591. **Pituitary macroadenoma refers to size of tumour –**

a. > 1 cm
b. > 1.5 cm
c. > 2 cm
d. > 2.5 cm

592. **When PRL level is >200 mcg/L the most common cause is?**

a. Pituitary stalk compression.
b. Prolactinoma.
c. Antipsychotic and antidepressant drugs.
d. Pregnancy and lactation.

593. **Macroprolactenemia refers to :-**

a. Pituitary adenoma > 10 mm.
b. A large polymeric prolactin molecule.
c. Pitutarytumor>4 cm with elevated PRL levels.
d. Any size pituitary adenoma with PRL > 1000 mcg/L .

594. **A 20 year old woman on risperidone for BPAD presents with amenorrhea and galactorrhea and is found to have an elevated Prolactin(PRL) level 80 mcg/L .What is next best step in her management?**

a. Recheck PRL in dilution.
b. Start Cabergoline @ 1 mg per week.
c. Stop Risperidone and measure PRL after 3 days.
d. Switch to an atypical antipsychotic in consultation with her psychiatrist.

595. **A young women with secondary amenorrhoea, galactorrhea and bitemporal heminopia. MRI shows a tumor of 25mm diameter in pituitary fossa.Treatment is;**

a. Radiotherapy.
b. Chemotherapy.
c. Bromocryptine.
d. Surgery.

596. **True about Prolactinoma in pregnancy are all except:**

a. Most common tumors in pregnancy and are usually asymptomatic
b. The size of the tumor increases in pregnancy
c. Increasing prolactin levels indicates bad prognosis/requires monitoring
d. In macroadenomas of 1cm may lead to optic chiasma compression

597. **8 months pregnant female with past history of prolactinoma presents with headache and no visual impairement .Which of the following is the most appropriate immediate step in her management :-**

a. Induction of delivery.
b. Start bromocriptine therapy.
c. Urgent neurosurgical intervention.
d. Urgent radiotherapy.

598. **Which of the following is not a presenting feature of hyperprolactinemia in women?**

a. Reduced vertebral bone density.
b. Decreased libido.
c. Weight loss.
d. Hirsutism.

599. **Which of the following is false about prolactin?**

a. Peak serum PRL levels occur between 4-6 A.M
b. Circulating half life of PRL is 50 minutes.
c. Predominant central control mechanism is inhibitory.
d. None of the above.

600. **Which of the following is not action of IGF-1 :-**

a. Insulin like activity.
b. Protein synthesis.
c. Lipolytic.
d. Epiphyseal growth.

587. c	588. d	589. d	590. b	591. a	592. b	593. b	594. c	595. c	596. c	597. b
598. c	599. d	600. c								

601. Which of the following about serum IGF-1 concentration is false?

a. Levels peak at 16 years of age.
b. Higher in males than in females.
c. Levels low in sepsis.
d. Levels high in acromegaly.

602. Confirmatory investigation for acromegaly

a. GH suppression test.
b. GH assay.
c. Insulin stimulation test.
d. IGF levels.

603. All are seen in Gigantism except :-

a. Mental retardation.
b. Visceromegaly.
c. Large foot.
d. Cardiovascular damage.

604. Which of the following is not a clinical feature of Acromegaly

a. Glucoma.
b. Goitre.
c. Jaw malocclusion.
d. Macroencephaly.

605. Which of the following regarding acromegaly is false?

a. Often clinically not diagnosed for 10 years or more.
b. Without treatment survival is reduced by 10 years.
c. Hypertension occur in about 75 % of patients.
d. Diabetes mellitus develops in 25 % of patients.

606. ADH/Vasopressin causes water reabsorption in collecting duct via which aquaporin(AQP) channels?

a. AQP 1.
b. AQP 2.
c. AQP 3.
d. AQP 4.

607. At high concentrations ,AVP action includes?

a. Smooth muscle contraction of blood vessels & GI tract.
b. Glycogenolysis in liver.
c. Potentiates ACTH release by CRH.
d. All of the above.

608. The average threshold or set point for AVP release corresponds to a plasma sodium about?

a. 125 meq/L.
b. 130 meq/L.
c. 135 meq/L.
d. 140 meq/L

609. Pitutary bright spot is absent in patients with?

a. Pitutary diabetes insipidus.
b. Nephrogenic DI.
c. Empty sella who do not have DI.
d. All the above.

610. Which of the following is not a cause for diabetes insipidus

a. Pregnancy.
b. Lithium.
c. Phenytoin.
d. Sicke cell anaemia.

611. Which of the following clinical features of diabetes insipidus is false :-

a. Daily urine volume is 50 mL/kg.
b. Urine osmolarity is <300 mosm/L
c. Dehydration is common.
d. Eneuresis is common.

612. Choose the best Lab value for patient with central diabetes insipidus:

	Urinary osmolality	Sr Osmolality
a.	50	300
b.	500	260.
c.	50	260.
d.	500	100.

613. In a 60 old female with polydipsia, ADH obtained are as follows

The baseline:
Sodium 151
Plasma osmolality 300
Urinary osmolality 150
After Vasopressin:
Sodium 142
Potassium 3.9
Plasma osmolality 290
Urinary osmolality 480
These findings suggest a diagnosis of
a. Central DI
b. Psychogenic polydipsia
c. Nephrogenic DI
d. SIADH

614. A patient with polyuria has following values before and after ADH stimulation test

Baseline
Serum osm-300
Urine osm -150
After ADH
Serum osm -300
Urine osm -160.
Which of the following is the likely diagnosis
a. Central DI.
b. Nephrogenic DI.
c. Psychogenic polydypsea.
d. Diabetes mellitus.

615. A 33 year old lady with polydipsia and polyuria. Her symptoms started soon afer a road traffic accident 6 months ago.The blood pressure is 120/80 mm Hg with no postural drop. The daily urinary output is 6-8 litres.In investigation showed Na-130 meq/l,K-3.5 meq/l,urea-15 mg/dl,sugar-64 mg/dl.The plasma osmolality is 268 msosm/L and urine osmolality 45 osmol/L.The most likely diagnosis is :

a. Central diabetes insipidus.
b. Nephrogenic diabetes insipidus.
c. Resolving acute tubular necrosis.
d. Psychogenic polydipsia.

601. b	602. a	603. a	604. d	605. c	606. b	607. d	608. c	609. d	610. c	611. c
612. a	613. a	614. b	615.d							

616. A patient following head injury was admitted in intensive care ward with signs of raised intrancranialpressure.He was put on ventilator and started on intravenous fluids and diuretics .24 hrs. Later his urine output was 3.5 Litres,serum Na-156 meq/l and urine osmolarity of 316 mOsm/L.The most likely diagnosis based on these parameters;

a. High output due to diuretics.
b. Diabetes insipidus.
c. Too mush infusion of normal saline.
d. Cerebral salt wasting disease.

617. A vasopressin analogue does not produce therapeutic effect through vasopressin-2 receptor in which of the following;

a. Central diabetes insipidus.
b. Bleeding esophageal varices.
c. Type I von Willebrand's disease.
d. Primary nocturnal enuresis.

618. All of the following are true about SIADH except

a. Vaptans are approved by FDA for its treatment
b. Water-loading test can be used for diagnosis of the condition
c. Urine sodium is usually low or normal in these patients
d. Serum sodium may be as low as 125 mEq/L in these patients

619. The syndrome of SIADH is characterized by the following:-

a. Hyponatremia and urine sodium excretion >20meq/l.
b. Hypernatremia and urine sodium excretion >20meq/l.
c. Hponatemia and hyperkalemia.
d. Hypernatremia and hypokalemia.

616. a	617. b	618. c	619. a

540. A. It is an autoimmune disease.

- It is an autoimmune disease.
- It is insulin dependent diabetes- Insulin dependent and Non dependent these terms are obsoleted.
- It is not associated with thyroid disorders
- Insulin resistance is the hallmark of the disease pathogenesis

541. D. Patients with type 2 diabetes are more prone to ketoacidosis as compared to type 1

Diabetes all of the following statement are correct EXCEPT

- Recognised endocrine causes of diabetes include acromegaly and cushing's syndrome
- The majority of type 2 diabetes mellitus patients die from cardiovascular disease
- Fasting blood sugar more than 126 establishes diagnosis of diabetes
- Patients with type 1 diabetes are more prone to ketoacidosis as compared to type 2.

542. B. Hydrocholrthiazide

Hydrochlorthiazide is not a preferred agent for the treatment of hypertension in diabetics as it causes unfavourable alteration in glucose and lipid profile of the patient. Hyperglycemia and hyperlipidemia have been reported with the use of diuretics as antihypertensive.

543. C. D-Xylose test

Tests for diabetes mellitus

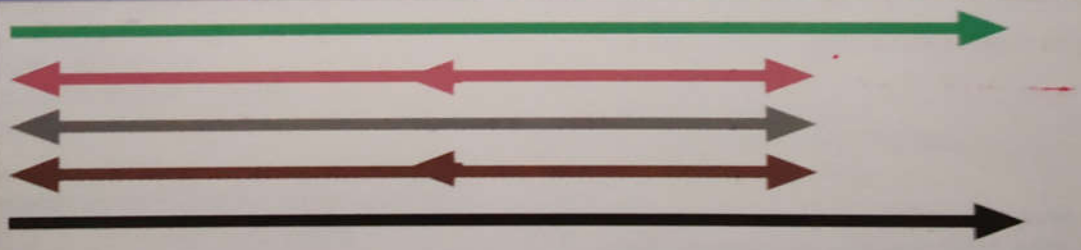
- Fasting blood sugar
- Random blood sugar
- Fructossamine assay
- HbA1C
- Postprandil glucose level
- Urine sugar

D-Xylose test- It is not a test for diabetes.

544. D. Glycosylated haemoglobin > 6.5%

Criteria for the Diagnosis of Diabetes Mellitus
• Symptoms of diabetes plus random blood glucose concentration >11.1 mmol/L (200 mg/dL)[a] or
• Fasting plasma glucose >7.0 mmol/L (126 mg/dL)[b] or
• Hemoglobin A_{1c} > 6.5%[c] or
• 2-h plasma glucose >11.1 mmol/L (200 mg/dL) during an oral glucose tolerance test[d]

545. D. 2 hours after glucose load 140-199 mg/dl, fasting blood sugar < 125 mg/dl

Type of Diabetes	Normal glucose tolerance	Hyperglycemia	
		Pre-diabetes*	Diabetes Mellitus
		Impaired fasting glucose or impaired glucose tolerance	Insulin Insulin requiring Insulin required for control Insulin required for survival
Type 1 Type 2 Other specific types Gestational Diabetes Time (years)			
FPG 2-h PG HbA1 C	<5.6 mmol/L (100 mg/dL) <7.8 mmol/L (140 mg/dL) <5.6%	5.6-6.9 mmol/L (100-125 mg/dL) 7.8-11.0 mmol/L (140-199 mg/dL) 5.7-6.4%	"70 mmol/L (126 mg/dL) >11.1 mmol/L (200 mg/dL) >6.5%

546. A. Bradycardia

Features of DKA

- Tachycardia
- Kussmaul's breathing
- Abdominal pain
- Dehydration

547. C. Excess of H^+ ions combines with HCO_3^-

Increased anion gap in DKA is due to Excess of H+ ions combines with HCO3- .

548. B. Diabetic ketoacidosis

Laboratory Values In Diabetic Ketoacidosis (Dka) And Hyperglycemic Hyperosmolar State (HHS) (Representative Ranges At Presentation)		
	DKA	HHS
Glucose,[a] mmol/L (mg/dL)	13.9-33.3 (250-600)	33.3-66.6 (600-1200)
Sodium, meq/L	125-135	135-145
Potassium[a,d]	Normal to ↑	Normal
Magnesium[a]	Normal	Normal
Chloride[d]	Normal	Normal
Phosphate[a,b]	Normal	Normal
Creatinine	Slightly ↑	Moderately ↑
Osmolality (mOsm/mL)	300-320	330-380
Plasma ketones[a]	++++	+/-
Serum bicarbonate,[a] meq/L	<15	Normal to slightly ↓
Arterial pH	6.8-7.3	>7.3
Arterial Pco_2,[a] mmHg	20-30	Normal
Anion gap[a] (Na - [Cl + HCO_3])	↑	Normal to slightly ↑

549. A. Hyperosmolar hyperglycemic state

550. D. Regular insulin

Drug of choice for managing hyperglycemia in diabetic ketoacidosis is regular insulin.

551. D. Serum bicarbonate in DKA is > 15 meq/L

552. A. Hypokalemia

Insulin shifts potassium from vessel to cell leads to intravascular hypokalemia.

553. C. Morning hyperglycemia with midnight hyperglycemia

- Dawn phenomenon- Early morning hyperglycemia with stable blood glucose level all night.

554. C. Symmetric sensory neuropathy

The characteristic and common presentation of diabetic neuropathy is: Symmetric sensory neuropathy

555. B. Nodular glomerulosclerosis

The most characteristic finding in diabetic nephropathy is: Nodular glomerulosclerosis.

556. C. Accidental exogenous insulin administration

Beta cells secrete insulin with C-peptide. Artificial insulin don't have C-peptide.

- Insulinoma- C-peptide level will increase.
- Accidental sulfonylurea ingestion- C-peptide level will increase
- Accidental exogenous insulin administration- C-peptide level will decrease or remain normal.
- Accidental metformin ingestion- Generally metformin doesn't causes hypoglycaemia.

557. A. Type I diabetes

- Type I diabetes is HLA associated.

558. B. Enalapril

Either ACE inhibitors or ARBs should be used to reduce the albuminuria and the associated decline in GFR that accompanies it in individuals with type 1 or type 2 DM (see "Hypertension," below). Although direct comparisons of ACE inhibitors and ARBs are lacking, most experts believe that the two classes of drugs are equivalent in patient with diabetes. ARBs can be used as an alternative in patients who develop ACE inhibitor-associated cough or angioedema. After 2-3 months of therapy in patients with microalbuminuria, the drug dose is increased until the maximum tolerated dose is reached. Recent studies do not show benefit of intervention prior to onset of microalbuminuria. The combination of an ACE inhibitor and an ARB is not recommended and appears to be detrimental. If use of either ACE inhibitors or ARBs is not possible or the blood pressure is not controlled, then, diuretics, calcium channel blockers {nondihy-dropyridine class), or beta blockers should be used. These salutary effects are mediated by reducing intraglomerular pressure and inhibition of angiotensin-driven sclerosing pathways, in part through inhibition of TGF-β-mediated pathways.

559. B. 1 and 2

Reffer to table ans 548.

Parathyroid

560. A. Parathyroid adenoma

Most common cause of primary hyperparathyroidism is Parathyroid adenoma

561. C. Increased c-AMP in urine

a. Hypercalcemia – dietary deficiency of Ca+ leads to hypocalcemia.
b. Hyperphosphatemia- increased in PTH leads to loss of PO4--
c. Increased c-AMP in urine- PTH acts on PCT cells it activates adenyl cyclase and it releases c-AMP in renal tubules
d. Decreased hydroxyproline in urine—Increased PTH activates osteoclast cells which destroy

562. A. Primary hyperparathyroidism

Parathyroid increases calcium absorption and excretion of phosphate.

563. B. Secondary hyperparathyroidism

Due to CRF kidneys are not able to absorb Calcium. Loss of calcium leads to hypocalcemia because of which PTH level increases which leads to destruction of bone.

564. A. Osteopetrosis

Osteopetrosis- literally "stone bone", also known as marble bone disease, or Albers-Schönberg disease is an extremely rare inherited disorder whereby the bones harden, becoming denser, in contrast to more prevalent conditions like osteoporosis, in which the bones become less dense and more brittle.
Osteoporosis, Cysts, Brown tumor are features of hyperparathyroidism.

565. B. Low urinary calcium

Primary hyperparathyroidism is associated with normal or increased urinary calcium level.

566. B. Hypoparathyroidism

Low calcium and high phosphate is seen in- Hypoparathyroidism. Parathyroid increases calcium absorption and excretion of phosphate.

567. A. Diarrhoea

Hypercalcemia is associated with constipation not diarrhoea.

568. D. Bisphosphonates

Bisphosphonates have a delayed onset of action beginning after days and are not recommended in patients with renal failure.

569. B. Pseudohypoparathyroidism Ib

Normal calcium level 8.5 to 10.2 mg/dl
Normal phosphate level 2.5 to 4.5 mg/dl

Type	Hypocalcemia, Hyperphosphatemia	Response of Urinary cAMP toPTH	Serum PTH	GsaSubunit Deficiency	AHO	Resistance to Hormones Other than PTH
PHP1A	Yes	↓	↑	Yes	Yes	Yes
PPHP	No	Normal	Normal	Yes	Yes	No
PHP1B	Yes	↓	↑	No	No	Yes (in some patients)
PHP2	Yes	Normal	↑	No	No	No
Acrodysostosis with hormonal resistance	Yes	Normal (but ↓. phosphaturic response)	↑	No	Yes	Yes

PHP- Pseudohypoparathyroidism
PPHP- Pseudopseudohypoparathyroidism
AHD- Albright Hereditary osteodystrophy

570. B. Pseudohypoparathyroidism Ib

571. A. Parathyroid hormone related protein

Hypercalcemia associated with malignancy is most often mediated by Parathyroid hormone related protein (PTHrP). PTHrP synthesized by malignant cells and it stimulates PTH receptors.

572. D. Both A and B

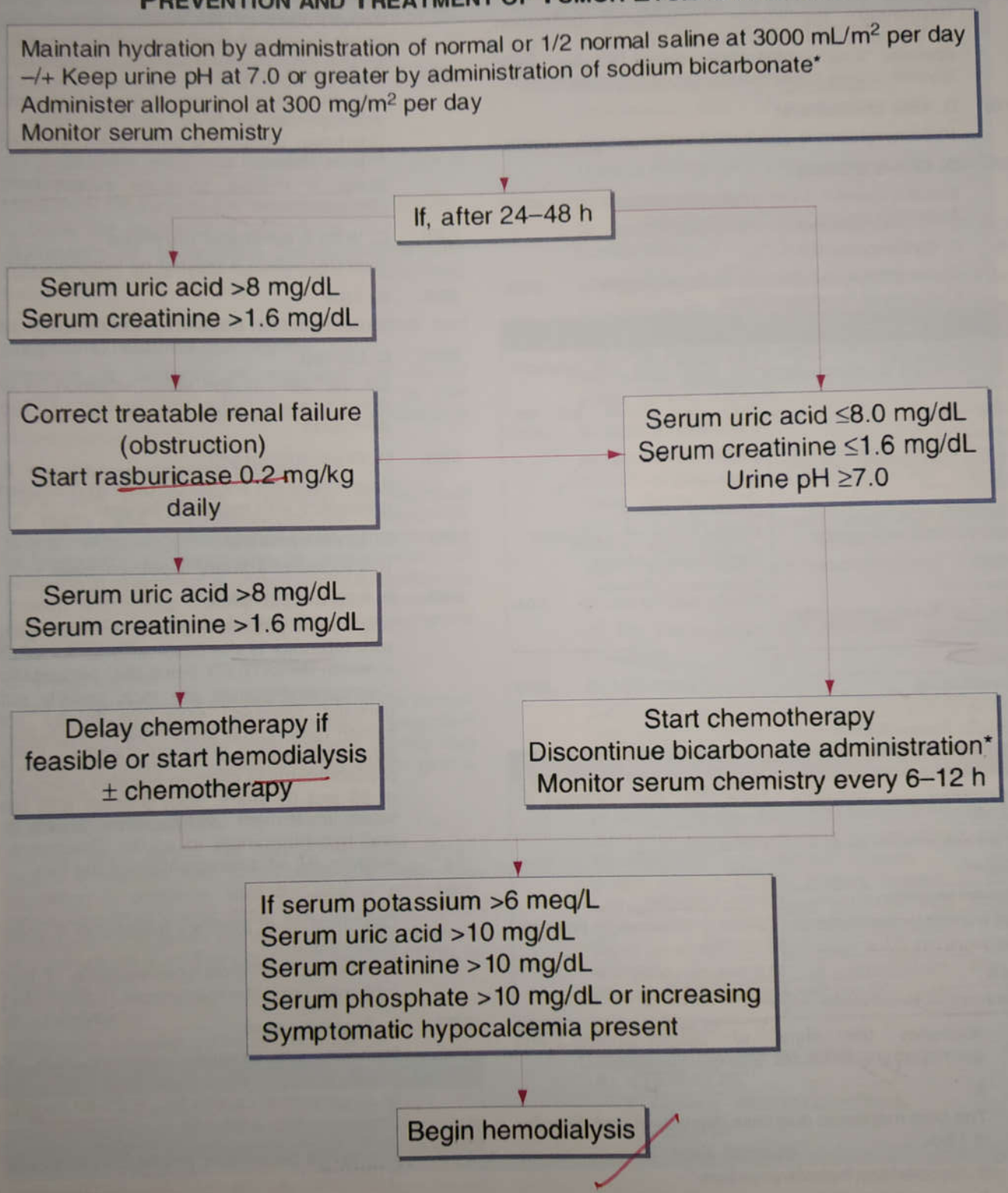
Parenchyma of 'parathyroid' cell, incorporated with; Chief cells and Oxyphil cells

573. D. Hypercalcemia

Hyperphosphatemia, Hyperkalemia, Hyperuricemia, Hypocalcemia are features of tumor lysis syndrome.

574. **A. Serum potassium > 10 meq/L**

PREVENTION AND TREATMENT OF TUMOR LYSIS SYNDROME


Maintain hydration by administration of normal or 1/2 normal saline at 3000 mL/m² per day
–/+ Keep urine pH at 7.0 or greater by administration of sodium bicarbonate*
Administer allopurinol at 300 mg/m² per day
Monitor serum chemistry
If, after 24–48 h
Serum uric acid >8 mg/dL
Serum creatinine >1.6 mg/dL
Correct treatable renal failure (obstruction)
Start rasburicase 0.2 mg/kg daily
Serum uric acid ≤8.0 mg/dL
Serum creatinine ≤1.6 mg/dL
Urine pH ≥7.0
Serum uric acid >8 mg/dL
Serum creatinine >1.6 mg/dL
Delay chemotherapy if feasible or start hemodialysis ± chemotherapy
Start chemotherapy
Discontinue bicarbonate administration*
Monitor serum chemistry every 6–12 h
If serum potassium >6 meq/L
Serum uric acid >10 mg/dL
Serum creatinine >10 mg/dL
Serum phosphate >10 mg/dL or increasing
Symptomatic hypocalcemia present
Begin hemodialysis

Thyroid

575. A. Hashimoto's thyroiditis

Hashimoto's thyroididtis- Lymphocytic infiltration of thyroid gland leads to hypothyroidism. Grave's disease, Toxic multinodular goiter, Solitary toxic thyroid nodule these are causes of hyperthyroidism.

576. D. Low cholesterol

Hypothyroidism is associated with high cholesterol.

577. D. Grave disease

Grave's disease is the single most common cause for hyperthyroidism and thyrotoxicosis.

578. C. Gynecomastia

Gynecomstia is a feature of thyrotoxicosis.

Features of hypothyroidism-

Symptoms	Signs
Tiredness, weakness	Dry coarse skin; cool peripheral extremities
Dry skin	Puffy face, hands, and feet (myxedema)
Feeling cold	Diffuse alopecia
Hair loss	Bradycardia
Difficulty concentrating and poor memory	Peripheral edema
Constipation	Delayed tendon reflex relaxation
Weight gain with poor appetite	Carpal tunnel syndrome
Dyspnea	Serous cavity effusions
Hoarse voice	
Menorrhagia (later oligomenorrhea or amenorrhea)	
Paresthesia	
Impaired hearing	

579. B. Paresthesia

Symptoms	Signs[a]
Hyperactivity, irritability, dysphoria	Tachycardia; atrial fibrillation in the elderly
Heat intolerance and sweating	Tremor
Palpitations	Goiter
Fatigue and weakness	Warm, moist skin
Weight loss with Increased appetite	Muscle weakness, proximal myopathy
Diarrhea	Lid retraction or lag
Polyuria	Gynecomastia
Oligomenorrhea, loss of libido	

[a]Excludes the signs of opthalmopathy and dermopathy specific for Graves' disease.

580. A

The best marker to diagnose thyroid related disorder is TSH.

581. B. Secondary hypothyroidism

Decreased TSH suggest defect in pituitary gland.

582. A. Jod-basedow phenomenon

Jod-Basedow phenomenon- iodine induced hyperthyroidism.

Wolff-Chaikoff effect- excess iodine transiently inhibits thyroid iodide organification.

583. A. Dequervain's thyroiditis

Dequervain's thyroiditis causes decreased iodine uptake.

Grave's disease, Toxic nodule and Toxic multinodular goiter cause increased radioiodine uptake.

584. C. Thyrotoxic crisis

Life threatening exacerbation of hyperthyroidism accompanied by fever, delirium, coma, vomiting, diarrhoea, jaundice is called as- Thyrotoxic crisis or thyroid storm.

State of thyroid hormone excess is called as -Thyrotoxicosis

585. C. With a synthetic hormone

Hypothyroidism is treated by levothyroxine.

586. A. TSH

Hypothyroidism treatment is best monitored by TSH.

587. C. Lid lag

Lid lag sign- is the static situation in which the upper eyelid is higher than normal with the globe in downgaze.

588. D. Propylthiouracil

Propylthiouracil should be used in first triemester of pregnancy with hyperthyroidism.

589. D. Levothyroxine

It is a case of primary hypothyroidism.

590. B. PROLACTINOMA

Any female patient with amenorrhea , galactorrhea with infertility is the classical triad for prolactinoma in which INFERTILITY being M.C presentation.

Craniopharyngiomas are rare, usually suprasellar, partially calcified, solid, or mixed solid-cystic benign tumors that arise from remnants of Rathke's pouch. They have a bimodal distribution, occurring predominantly in children but also between the ages of 55 and 65 years. They present with headaches, visual impairment, and impaired growth in children and hypopituitarism in adults. Treatment involves surgery, RT, or a combination of the two.

591. A. > 1 cm

Classification of pituitary adenomas is done the size of the gland .

<10mm/1cm -Microadenomas.(90% ;F:M=20:1)

>10 mm/1cm -Macroadenoma.(10%;F:M=1:1)

592. B. Prolactinoma

Prolactinomas generally correlate with PRL >200 mcg/L.

In physiological causes PRL is 25-40 mcg/L

Iatrogenic PRL is 25-100 mcg/L.

593. B. A large polymeric prolactin molecule.

MACROPROLACTIN /BIG PROLACTIN refers to large polymeric form of PRL hormone .85 % of PRL is monomeric but serum also contains dimeric and polymeric forms which have reduced clearance in blood.These forms are usually caused by precipitation of PRL by antibodies in blood but these are less bioactive form .So they are suspected in patients with high PRL levels with no symptoms

594. C. Stop Risperidone and measure PRL after 3 days.

Drug induced hyperprolactinemia (IATROGENIC) usually shows rise of PRL levels in the range of 25-100 mcg/L (Normal 5-25 mcg/L) .It occurs due to blockage of TUBULOINFUNDIBULAR pathway.
It usually returns to normal range if drug is stopped for 72 hours.

595. C. Bromocryptine.

For all pituitary adenomas irrespective of the size of the tumor.
Indications for surgical adenoma debulking include
1).Dopamine resistance or intolerance
2).Presence of an invasive macroadenoma with compromised vision that fails to improve after drug treatment.

596. C. Increasing prolactin levels indicates bad prognosis/requires monitoring

Increase of prolactin in pregnancy is normal physiological doesn't require monitoring as rise more likely to be physiologically than pathological in pregnancy.

597. B. Start bromocriptine therapy

<5% and <15-40 % probability of regrowth of micro and macroprolactinomas respectively during pregnancy.Management of prolactinoma in pregnancy is challenging as measurement of prolactin in pregnancy is unrealible.Patients showing growth with visual defects require decompression. For cases having headache restarting Bromocriptine would be best.

598. C. Weight loss.

Chief presentations of hyperprolactenemia in women are oligomenorrhea/amenorrhea,galactorrhea,infertility ,reduced vertebral bone mineral density due to hypoestrogenemia,decreasedlibido,weight gain & hirsutism.

599. D. None of the above.

Normal adult serum PRL levels are about 10–25 mcg/L in women and 10–20 mcg/L in men. PRL secretion is pulsatile, with the highest secretory peaks occurring during rapid eye movement sleep. Peak serum PRL levels (up to 30 g/L) occur between 4:00 and 6:00 a.m. The circulating half-life of PRL is about 50 min.

600. C. Lipolytic

Difference between action of GH & IGF-1

Action	GH	IGF-1
Carbohydrate	Diabetogenic	Antidiabetic
Protein	Synthesis	Synthesis
Fat	Lipolytic	Antilipolytic

601. B. Higher in males than in females

Serum IGF-1 levels increase during puberty,peak at 16 years and decline.IGF-1 concentrations are higher in females than males.GH is a major determinant of hepatic IGF-1 synthesis.IGF-1 are low with cachexia,malnutrition& sepsis (hypocaloric states are associated with GH resistance).Though GH levels are increased in Sepsis.IGF levels fall due to GH resistance .In acromegaly ,IGF-1 levels are invariably high.

602. A. GH suppression test

Best screening test -IGF-1 Assay
Confirmatory test – GH suppression test.

603. A. Mental retardation.

There is no change in I.Q in patients with gigantism .

604. D. Macroencephaly

In Acromegaly there is enlargement of all organs except BRAIN.

605. C. Hypertension occur in about 75 % of patients

In acromegaly cardiovascular system is most severlyaffected.Coronal heart disease ,cardiomyopathy with arrhythmias,left ventricular hypertrophy,-decreased diastolic dysfunction & hypertension in about 30% of patients.

606. B. AQP 2

Aquaporin 2 (AQP 2) are present on luminal side of CCD part of nephron & it causes ADH dependent water reabsorption.
AQP 1 – is seen on PCT and it causes ADH independent water reabsorption.
AQP 3,AQP 4 is seen over basolateral part of nephron.

607. D. All of the above.

All the above action are mediated via vasopressin receptors.

608. C. 135 meq/L.

Average threshold for AVP release is Serum osmolarity -280 mosm/L Serum Sodium - 135 meq/L. Level only 2-4 %higher results in Maximum antidiuresis.

609. D. All the above

In MRI of pituitary & hypothalamus of healthy beings ,posterior pituitary emits a hyperintense signal on T1 weighted mid sagittal images .The pituitary bright spot is almost always present in patients with primary polydipsia but invariably absent or abnormally small in patients with pituitary DI.It is small or absent in nephrogenic DI because of high secretion & turnover of vasopressin. Also seen absent in empty Sella with no DI.

610. C. Phenytoin

Causes of Diabetes insipidus
A). CENTRAL DI
1).Genetic -Wolfram syndrome.
2).Acquired
i). Stalk damage
-Tumors -Cranipharyngioma, pituitary adenoma.
-Infiltrative -Lymphocytic hypophysistis, wegners, SLE, scleroderma.
ii). Trauma -Pitutary surgery ,closed or penetrating trauma.
iii). Snake bite.

iv). Vascular -Sheehan syndrome
v). Pregnancy (2nd& 3rd trimester) -due to vasoprinase

B). NEPHROGENIC DI
1). DRUGS (LACDFARM)
i). Lithium.
ii). Demecocycline.
iii). Aminoglycoside.
iv). Cisplatin.
v). Foscarnet.
vi). Amphotericin B.
vii). Rifampicin.
viii). Methoxyflurane.
2). Hypercalcemia ,hypokalemia.
3). Sickle cell disease.
4). Obstructive uropathy (Unilateral).
5). Neoplasms -sarcoma.
6). Infiltrative -amyloidosis.
7). Granulomas -sarcoidosis.

611. C. Dehydration is common

Dehydration doesn't occur as due to volume depletion thirst centre is activated and person consumes more water to balance the loss resulting in compensation and no dehydration.

612. A. 50

In DI there is decrease in urine osmolality due to high water content while high serum osmolality due to less water content.

613. A. Central DI

On ADH stimulation as urine osmolality rises >50% of baseline is suggestive of ADH deficiency i.e central DI.

614. B. Nephrogenic DI.

In ADH stimulation test there would be rise of urine osm>50 % of baseline in patients with central DI. While in nephrogenic DI there would be rise <10 % of baseline.

615. D. Psychogenic polydipsia

A patient with polydipsia, polyuria with low urine osmolality and low sodium with low serum osm. Is a case of psychogenic polydipsia as due to excess of water intake there is dilution seen in urine and serum both.

616. A. High output due to diuretics

a). Increased sodium seen due volume contraction caused by excess water loss from the body finally causing polyuria with normal urine osmolality.
b). DI- Polyuria occurs with low urine osm.
c). High infusion would not cause hypernatremia due to aldosterone effect.
d). It presents with hypovolemic hyponatremia.

617. B. Bleeding esophageal varices

In bleeding oesophageal varices vasoconstriction would help via V2 receptors.

618. C. Urine sodium is usually low or normal in these patients

Natriuresis occurs due to effect of ANP & decrease in aldosterone effect secondary to volume expansion.

619. A. Hyponatremia and urine sodium excretion >20meq/l.

In SIADH there is dilutional hyponatremia with natriuresis and no change in potassium level & pH occurs.

Headache

620. A female aged 30, presents with episodic throbbing headache for past 4 yrs. It usually involves one half of the face and is associated with nausea and vomiting. There is no aura. Most likely diagnosis is:

a. Classic migraine
b. Common migraine
c. Acephalgic migraine
d. Brainstem migraine

621. Which of the following is least prominent, in acephalgic migraine?

a. Nausea
b. Vomiting
c. Headache
d. Vertigo

622. Which of the following is true regarding Tension Type Headache?

a. It may be associated with nausea, vomiting
b. Amitriptyline is the only approved drug for episodic tension type headache
c. Tension is not an etiology
d. It is called as chronic when it occurs on daily or near daily basis

623. Which of the following is false regarding trigeminal autonomic cephalalgias?

a. It consist of Hemicrania continua, cluster headache, paroxysmal hemicrania
b. It is associated with pituitary tumors
c. Not associated with photophobia, phonophobia
d. It includes SUNCT and SUNA

624. Which of the following is false about cluster headache?

a. Central pacemaker neurons in the hypothalamus are involved in pathology
b. Associated with bilateral photophobia and phonophobia
c. Periodicity is core feature, at least one of the daily attacks of pain recurs at about the same hour each day
d. Associated with ipsilateral symptoms of cranial parasympathetic autonomic activation.

625. A 26-year-old woman has throbbing right-sided headaches that are centered around her right eye. They are worse with movement and aggravated by loud noises. There are no premonitory warnings. Triggers for the headaches include lack of sleep, stress, and red wine. A mild attack can betreated by ibuprofen, but nonsteroidal anti-inflammatory drugs have no effect on more severe pain.Which of the following best characterizes about the pathogenesis of the patient'sheadache syndrome?

a. Diffuse muscular contraction of the neck and scalp
b. Disinhibition of the central pacemaker neurons in the posterior hypothalamic region
c. Dysfunction of monoaminergic sensory control systems in brainstem and hypothalamus
d. Focal cerebral vasodilation in the region of the brain that is the focus of the pain

626. All of the following statements about treatment of migraine are true, except:

a. Naratriptan has slower onset and longer t1/2 than sumatriptan
b. Rizatriptan is more efficacious than sumatriptan
c. Sumatriptan is a selective 5-HT 1B/1D agonist
d. Sumatriptan is used for chronic migraine

627. Which of the following statement is true about temporal arteritis:-

a. More common in middle aged males.
b. Hemiparesis is an associated feature.
c. Blindness is a preventable complication.
d. Raised ESR is essential for disease

628. Most common cause of pseudotumor cerebri is

a. Idiopathic
b. Hypervitaminosis A
c. Oral contraceptive pills
d. Abrupt withdrawal of steroids

629. A 56 year old female complains of severe unilateral headache on right side and blindness for 2 days. On examination there is thick cord like structure on lateral side of the head. The ESR is 80 mm/hr. The most likely diagnosis is

a. Temporal arteritis
b. Migraine
c. Cluster headache
d. Paroxysmal hemicrania

630. Drug of choice for acute attack of migraine is

a. Methysergide
b. Caffeine
c. Amitryptiline
d. Sumatriptan

631. All of the following are features of pseudotumor cerebri except

a. Associated with hypervitaminosis A
b. Convulsion
c. Papilloedema
d. Seen in young obese female

Seizures and epilepsy

632. All of the following are characteristics of MESIAL TEMPORAL LOBE EPILEPSY EXCEPT

a. Usually family history of epilepsy is absent
b. Aura is common
c. MRI shows enlarged temporal horn
d. MRI shows hippocampal sclerosis

620. b	621. c	622. c	623. c	624. b	625. c	626. d	627. c	628. a	629. a	630. c
631. b	632. a									

633. A 24 year old married female is a known case of focal seizure with dyscognitive features. She is taking carbamazepine regularly and her seizures are well controlled. Now she comes to OPD with positive HCG urine test. What will be your plan of treatment?

a. Change the drug carbamazepine with safest drug in pregnancy Lamotrigine
b. Add lamotrigine and gradually taper carbamazepine
c. Continue only CBZ and treat the mother with oral vitamin k in last 2 weeks and infant with intramuscular vitamin K at birth
d. Add lamotrigine, continue CBZ and lamotrigine combination in lowest dose for first trimester then taper CBZ

634. Antiepileptic drug that acts by inhibiting voltage gated calcium channels is

a. Phenytoin
b. Lamotrigine
c. Levetericetam
d. Topiramate

635. A child presents with short episodes of vacant stare several times a day. The vacant episode begins abruptly and the child remains unresponsive during the episode. These episodes were not followed by postictal confusion. The drug of choice for this patient is-

a. Lamotrigine
b. Valproate
c. Ethosuximide
d. Carbamazepine

636. All of the following are features of juvenile myoclonic epilepsy, except:

a. Myoclonus on awakening
b. Generalized tonic-clonic seizures
c. Automatism
d. Consciousness is preserved

637. DOC for status epilecticus

a. Pregabalin
b. Topiramate
c. Thiopentone sodium
d. Carbamazepine

638. Generalized tonic clonic status epilepticus, treatment of choice:

a. Ethosuxamide
b. Sodium valproate
c. Lamotrigene
d. Lorazepam

639. A patient is confused and displays episodes such as grimacing, squirming, and flailing of the limbs; side-to – side movement of the head; and resistance and even thrashing at anyone attempting to assist him. The patient displays no aura, and the EEG during this period appears approximately normal . Which of the following best characterizes this disorder?

a. Generalized seizure
b. Absence seizure
c. Complex partial seizure
d. Psychogenic seizure

640. Which of the following is false about absence seizure?

a. Sudden brief loss of counciousness with loss of postural control.
b. Typically lasts for only seconds.
c. Counciousness returns as suddenly as it is lost.
d. No post ictal confusion.

641. Which among the following is not a risk for seizures:

a. Hypocalcemia
b. Hypomagnesemia
c. Hypokalemia
d. Chronic renal failure

642. Which among the following can be used in a patient presenting with complex partial seizure, known to have CLD, Cirrhosis, portal hypertension.

a. Phenytoin
b. Levetiracetam
c. Valproate
d. Lamotrigine

643. The drug of choice for a 40 yrs old obese lady with recurrent seizures would be:

a. Phenytoin
b. Valproate
c. Topiramate
d. Carbamazepine

644. A 72-year old gentleman with normal renal functions serum sodium of 125 meq presents with new onset focal seizures. Which of the following is the best drug to manage the patient?

a. Sodium valproate
b. Carbazepine
c. Levetriacetam
d. Pregabalin.

Stroke

645. A 26 year old male, known case of rheumatic heart disease with atrial fibrillation presents with acute onset weakness of left side of body (both upper and lower limb) which recovered in 20 hours. CT scan brain showed ischemic changes in right internal capsule. The most likely diagnosis is-

a. Embolic stroke
b. Thrombotic stroke
c. Transient ischemic attack
d. Hemorrhagic stroke

646. When cerebral blood flow falls to < 16 to 18 ml/100gm per min, how long it will take for brain infarction?

a. 1 hour
b. 2 hour
c. 4 to 10 mins
d. 1 min

647. Patient is having impaired comprehension and naming but normal repetition and fluency. What is the probable diagnosis?

a. Anterior transcortical aphasia
b. Posterior transcortical aphasia
c. Isolation aphasia
d. Broca's Aphasia

633. c	634. a	635. c	636. c	637. d	638. d	639. d	640. a	641. c	642. b	643. c
644. c	645. a	646. a	647. b							

648. 40 year old female is brought to emergency room after being unresponsive following a sudden bout of severe headache at work. On examination her BP is 180/110 & her respiration is irregular & of cheyne stokes type. She is agitated & doesn't follow commands, but moves her extremities spontaneously most likely diagnosis is-

a. SAH
b. ICH
c. SDH
d. TIA

649. 46 yr old patient complaining of severe bursting headache on examination he was found to be conscious but restless, neck stiffness & drooping of right eyelid were observed. Clinical diagnosis is

a. Cerebral embolism
b. Posterior communicating artery aneurysm with SAH
c. Anterior communicating Artery aneurysm with SAH
d. Cavernous sinus thrombosis

650. A 70 year old male coming with left sided weakness of body which recovered completely within 18 hours. On examination blood pressure was 150/80. Patient is a known case of hypertension and diabetes. What is the ABCD2 score for this patient?

a. 7
b. 4
c. 2
d. 6

651. Cortical blindness, amnesia and thalamic pain are associated with occlusion of-

a. Anterior cerebral artery
b. Basilar artery
c. Middle cerebral artery
d. Posterior cerebral artery

652. Which of the following is contraindication for thrombolysis in a patient of ischemic stroke?

a. BP >185/100
b. Blood glucose < 100
c. CT scan showing edema< 1/3rd of MCA
d. Platlet count < 1 lac

653. Blood supply of paracentral lobule is

a. Anterior cerebral artery
b. Anterior choroidal artery
c. Anterior communicating artery
d. Middle cerebral artery

654. A lesion in paracentral lobule causes

a. Contralateral foot weakness
b. Seizures
c. Migraine
d. Cognitive loss

655. Antisocial behaviour is a feature of damage to

a. Prefrontal area of frontal lobe
b. Primary frontal area of frontal lobe
c. Premotor area of frontal lobe
d. Paracentral lobule of frontal lobe

656. All of the following are components of Gerstmann syndrome EXCEPT

a. Dysgraphia
b. Acalculia
c. Finger agnosia
d. Astereognosis

657. Lesion of left temporal lobe produces all of the following EXCEPT

a. Aphasia
b. Quadrantopia
c. Anterograde amnesia
d. Apraxia

658. Hunt and Hess scale is used for grading of

a. Subarachnoid hemorrhage
b. Intracranial hemorrhage
c. Subdural hemorrhage
d. Extradural hemorrhage

659. 3H therapy for treatment of subarachnoid hemorrhage consists of all of the following except

a. Hypertension
b. Hemodilution
c. Hypervolumia
d. Hyponatremia

660. A 63 year old male presented with history of progressive right side weakness of 1 month duration. Patient is also having speech difficulty. Fundus examination showed papilloedema. 2 months ago he also had fall in his bathroom and stuck his head against a wall. The most likely diagnosis is-

a. Intracerebral hemorrhage
b. Subdural hemorrhage
c. Extradural haemorrhage
d. Diffuse axonal injury

661. Risk of stroke after transient ischemic attack is high in

a. In first 3 days
b. In first 2 days
c. In first 7 days
d. In first in 14 days

662. All of the following parameters are included in ABCD2 score except

a. Age ≥ 60 years (1 point)
b. Diastolic BP >90 (1 point)
c. Diabetes (2 points)
d. Speech involvement (1 point)

663. How much decrease in blood to brain is required to cause ischemia without infarction?

a. 25 ml/ 100 gm of brain tissue/ min
b. < 16 – 18 ml/ 100 gm of brain tissue/ min
c. < 20 ml/ 100 gm of brain tissue/ min
d. < 15 ml/ 100 gm of brain tissue/ min

664. Most epileptogenic stroke is-

a. Embolic
b. Hemorrhagic
c. Thrombotic
d. Subarachnoid haemorrhage.

648. a	649. b	650. a	651. d	652. d	653. a	654. a	655. a	656. d	657. d	658. a
659. d	660. b	661. b	662. c	663. c	664. a					

665. Cortical blindness, amnesia and thalamic pain are associated with-

a. Anterior cerebral artery
b. Middle cerebral artery
c. Basilar artery
d. Posterior cerebral artery

666. Prosopagnosia is due to lesion in

a. Temporal lobe
b. Prefrontal lobe
c. Occipital lobe
d. Parietal lobe

667. All of the following are midbrain syndrome Except

a. Weber syndrome
b. Foville's syndrome
c. Benedikt's syndrome
d. Claude's syndrome

668. Ipsilateral Sixth nerve palsy, ipsilateral seventh nerve palsy and contralateral hemiplegia are features of

a. Millard-Gubler syndrome
b. Locked in syndrome
c. Weber's syndrome
d. Nothnagel's syndrome

669. In first 3 months after TIA ,risk of stroke is?

a. 10-15%.
b. 20-35 %.
c. 40-60 %.
d. 60-85 %.

670. A 66 year old man has the sudden painless onset of paresis of the right upper and lower face , inability to abduct the right eye, and paresis of the left arm and leg . The lesion is most likely in the :

a. Midbrain
b. Medulla
c. Pons
d. Temporal lobe

671. The structures involved in the above case are:

a. VI , VII nerve on the left and cortispinal tract on the right
b. VI, VII nerves on the right and corticospinal tract on the left.
c. VI, VII nerves and corticospinal tract on the right side
d. VI, VII nerves and corticospinal tract on the left side

672. Dense Hemiplegia occurs due occlusion of

a. ACA
b. MCA
c. PCA
d. Temporal artery

673. 60 year old male patient having miosis, ptosis, anhydrosis on left side and difficulty in walking. Patient also gives complaints of dysphagia, dysarthria. On examination, you found that pain and temperature lost on right side of the body and left side of face. What is probable diagnosis?

a. Left Medial medullary syndrome
b. Left lateral medullary syndrome
c. Right lateral medullary syndrome
d. Rght Medial medullary syndrome

Meningitis

674. A 50yr old male known case of type 2 Diabetes, now coming with fever headache decreased level of consciousness. On examination neck stiffness is positive. CT scan brain is normal, Routine investigations of blood are Hb=12, sugar=133, AST =25, ALT=20, CSF analysis showing WBC=1200, protein=100, Sugar=40. What is probable diagnosis?

a. Viral meningitis
b. Bacterial meningitis
c. Fungal meningitis
d. TB meningitis

675. A 50yr old male coming with fever, headache, decreased level of consciousness. On examination neck stiffness is positive. CT scan brain is normal. Routine investigations of blood are Hb=12, AST =25, ALT=20, CSF analysis showing WBC=400 (lymphocyte predominant), protein=40, Sugar=60. What is probable diagnosis?

a. Viral meningitis
b. Bacterial meningitis
c. Fungal meningitis
d. Tuberculous meningitis

676. A 50 year old male, coming with fever, headache and decreased level of consciousness. On examination neck rigidity is present. CT scan brain is normal. Routine investigations of blood are Hb=12, AST =25, ALT=20, CSF analysis showing WBC=1000 (NEUTROPHIL predominant), protein=100, Sugar=20. What is your next step in management-?

a. Intravenous ceftriaxone + vancomycin
b. Intravenous ceftriaxone + vancomycin + Ampicillin
c. Intravenous Ceftriaxone + Ampicillin + Gentamycin
d. Intravenous ampicillin + gentamycin

677. A 60 year old alcoholic male, coming with fever, headache and decreased level of consciousness. On examination neck rigidity is present. CT scan brain is normal. Routine investigations of blood are Hb=12, AST =25, ALT=20, CSF analysis showing WBC=1000 (NEUTROPHIL predominant), protein=100, Sugar=20. What is your next step in management-?

a. Intravenous ceftriaxone + vancomycin
b. Intravenous ceftriaxone + vancomycin + Ampicillin
c. Intravenous Ceftriaxone + Ampicillin + Gentamycin
d. Intravenous ampicillin + gentamycin

678. Classic triad of meningitis consists of all of the following except

a. Headache
b. Fever
c. Irregular respiration
d. Neck stiffness

665. a	666. a	667. b	667. a	668. a	669. a	670. c	671. c	672. b	673. b	674. b
675. a	676. a	677. b	678. c							

679. Cushing reflex in raised ICP relates to all of the following except?

a. Bradycardia
b. Hypertension
c. Irregular respiration
d. Hypotension

680. Diagnostic procedure of choice for viral meningitis caused by enterovirus is

a. PCR from CSF
b. RTPCR from CSF
c. IgM antibody from CSF
d. Gene Expert

681. 'Mollaret's meningitis' is due to?

a. HIV
b. HSV
c. EBV
d. CMV

682. Which of the following is not seen in tubercular meningitis?

a. Low sugar
b. High protein
c. Low opening pressure
d. Lymphocytic pleocytosis

683. Acyclovir is used in all of the following viral meningitis EXCEPT

a. HSV
b. EBV
c. VZV
d. Enterovirus

684. A young male was diagnosed to be suffering from tubercular meningitis and was started on anti-tubercular therapy for the same. 1 month later, he presents with worsening of sensorium in spite of good compliance. All of the following are justified as urgent investigations in this patient except –

a. NCCT
b. CSF examination
c. Liver enzymes and electrolytes
d. MRI

Infections

685. Which of the following statements about Prions is true?

a. Kuru is inherited prion disease
b. They affect only nervous system
c. They have rich nuclear material
d. They causes abnormal stimulation of immune system

686. Which one of the following is not a human prion disease?

a. Scrapie
b. Kuru
c. Creutzfeldt-Jakob disease
d. Gerstmann-StraussierScheinker disease

687. Most common human prion disease is-

a. Creutzfeldt Jacob disease
b. Gerstman-Straussierscheinker disease
c. Fatal familial insomnia
d. Kuru

Parkinson's Disease

688. A 45 year old male presents with recurrent falls. MRI brain shows atrophy of mid-brain what is probable diagnosis?

a. Multiple system atrophy
b. Progressive Supranuclear palsy
c. Lewy body dementia
d. Shy dragger syndrome

689. All of the following are Non-motor features of Parkinson's disease, except

a. Sleep disturbances
b. Cognitive impairment
c. Loss of taste
d. Loss of smell

690. Which of the following is false about Rest tremors in PD?

a. Frequency of 4 to 6 Hz.
b. Appear bilaterally first distally.
c. May appear in lips,tongue and jaw.
d. Spares head and neck.

691. All of the following are protective factors for Parkinson's disease except?

a. Caffeine
b. Calcium channel blockers
c. NSAIDS
d. MPTP

692. Parkinsonism may be caused by all except :

a. Reserpine
b. Alpha methyldopa
c. Metoclopramide
d. Phenytoin sodium

693. Parkinsonism symptoms develop when striatal dopamine depletion reaches how much of normal?

a. 10-30 %.
b. 30-50 %.
c. 50-70 %.
d. 70 -90 %.

694. Testing for postural instability in PD is done by?

a. Swing test.
b. Push test.
c. Pull test.
d. Lift test.

695. Which of the following is most useful in the diagnosis of parkinsonism :

a. EEG and CT scan
b. Clinical examination
c. History
d. Therapeutic response to drugs

696. The following may be considered non motor manifestations of PD:

a. Impaired vibration in distal Lower limb
b. Seizures
c. Optic atrophy
d. Anosmia

679. d	680. b	681. b	682. c	683. d	684. b	685. b	686. a	687. a	688. b	689. c
690. b	691. d	692. d	693. c	694. c	695. b	696. d				

697. Which of the following symptoms respond poorly to therapy in PD?
a. Bradykinesia. b. Abnormal posture.
c. Balance difficulties. d. Rigidity.

698. Which of the following drugs is used as anti-dyskinesia agent inparkinson's disease?
a. Amantidine b. Pramipexole
c. Apomorphine d. Trihexiphenidine

699. Surgical treatment of parkinson's disease consists of-
a. Deep brain stimulation of globus pallidus interna
b. Deep brain stimulation of globus pallidus externa
c. Deep brain stimulation of Substantia nigra
d. Deep brain stimulation of Caudate nucleus

700. Most common cause of secondary parkinsonism is-
a. Carbon monoxide b. Manganese
c. Antipsychotic drugs d. Genetic defect

GAIT

701. All of the following are true about Lurching gait except
a. Patient lurch on normal (non-paralysed) side
b. It is due to unilateral weakness of gluteus medius
c. Fall of pelvis on non-paralysed (contralateral) side
d. Seen in polio

702. All of the following are true regarding scissoring gait EXCEPT
a. Seen in cerebral palsy
b. Adduction and internal rotation of hip
c. Extension at knee
d. Plantar flexion at ankle

Hyperkinetic Movement Disorders

703. Which of the following is false regarding essential tremors?
a. It is commonest movement disorder
b. Manifest as postural or action tremor
c. Treatment is propanolol
d. Frequency is 4 to 6 HZ

704. All are true about Huntington's disease except:
a. Chorea
b. Increased CAG repeats
c. Early onset of memory loss
d. Seizure

705. Which of the following is false regarding hyperkinetic movement disorders?
a. Chorea is due to lesion in caudate nucleus
b. Hemiballismus is due to lesion in subthalamic nucleus
c. Dystonia is due to lesion in putamen
d. Athetosis is due to lesion in globus pallidus

706. All of the following are core symptoms for diagnosis of Restless leg syndrome EXCEPT
a. Unpleasant sensations on the legs
b. Symptoms begins with the rest
c. Symptoms improved by alcohol
d. Symptoms becomes worse in the evening or night

707. A 48-years old man complains of pronounced shaking(4-8 hz) of both his left and right hands and head subsides during walking, after taking an alcoholic drink, and after treatment with the β- adrenergic antagonist propranolol, but it gets exaggerated during states of anxiety. Which of the following is the most likely diagnosis?
a. Parkinson disease b. Essential tremor
c. Dystonia d. Cerebellar ataxia

708. Rapid, repetititve, coordinated and stereotyped movements, most of which can be mimicked are known as:
a. Chorea b. Ballism
c. Athetosia d. Tics

709. Athetoid movements are most marked in the:
a. Face
b. Trunk
c. Proximal part of extremities
d. Distal part of extremities

710. Match the following:

Lesion in	Movement
I) Caudate nucleus	(i) Hemiballism
II)Subthalamic nulei	(ii) Chorea
III)Lenticular nucleus	(iii) Althetosis

a I(i) II(ii) III(iii) b I(ii) II(iii) III(i)
c I(iii) II(i) III(ii) d I (ii) II(i) III(iii)

711. A 10 year old male coming with repetitive blinking of eyes, twitching of nose and jerking of neck accompanied by vocalisation. What is the most probable diagnosis?
a. Tourette's syndrome b. Tics
c. Cluster tic d. Myoclonus

712. Sudden brief shock like jerkey movements involving groups of muscles with normal consciousness are called as
a. Hemiballismus b. Myoclonus
c. Athetosis d. chorea

Spinal Cord

713. Features of syringomyelia include all of the following, except:
a. Dissociative sensory loss
b. Early sacral involvement
c. Suspended sensory loss
d. Wasting of small muscles of hand

697. c	698. a	699. a	700. c	701. a	702. c	703. d	704. c	705. c	706. c	707. b
708. d	709. d	710. d	711. a	712. b	713. b					

714. In spinal cord sacral fibers are placed laterally in all except

a. Lateral spinothalamic tract
b. Lateral corticospinal tract
c. Ventral spinothalamic
d. Dorsal column

715. Bulbar paralysis refers to:

a. UMN Paralysis of cranial nerve III to XII
b. UMN Paralysis of cranial nerve IX to XII
c. LMN Paralysis of cranial nerve IX to XII
d. LMN Paralysis of cranial nerve III to XII

716. Pseudobulbar paralysis refers to:

a. UMN Paralysis of cranial nerve III to XII
b. UMN Paralysis of cranial nerve IX to XII
c. LMN Paralysis of cranial nerve IX to XII
d. LMN Paralysis of cranial nerve III to XII

717. Which of the following statements about Brown Sequard Syndrome is true?

a. Ipsilateral loss of temperature
b. Contralateral loss of pain
c. Contralateral loss of vibration
d. Contralateral Plantar Extensor

718. Which of the following is not a feature of extramedullary tumour?

a. Early corticospinal signs and paralysis
b. Root pain
c. Asymmetric weakness
d. Sacral sparing

719. Clinical features of conus medullaris syndrome include all of the following except:

a. Plantar extensor response
b. Absent knee and ankle jerks
c. Sacral anesthesia
d. Lower sacral and coccygeal segments involvement

720. Early loss of bladder control is seen in

a. Conus medullaris syndrome
b. Cauda equina syndrome
c. Gullain barre syndrome
d. Amyotrophic Lateral Sclerosis

721. Spinal shock is characterized by all of the following except

a. Wasting
b. Sensory loss
c. Urinary retention
d. Areflexia

722. A patient involved in a road traffic accident presents with quadriparesis, sphincter disturbance, sensory level up to the upper border of sternum and breathing difficulty. The likely level of lesion is:

a. C1-C2
b. C4-C5
c. T1-T2
d. T3-T4

723. Anterior spinal artery thrombosis is characterized by all, except:

a. Loss of pain and touch
b. Loss of vibration sense
c. Loss of power in lower limb
d. Sphincter dysfunction

724. All of the following clinical features can present in cervical myelopathy except

a. Facial sensory loss
b. Brisk jaw jerk
c. Urinary bladder dysfunction
d. Horner's syndrome

725. Following are the features of corticospinal tract involvement except:

a. Cog-wheel rigidity.
b. Spasticity.
c. Plantar extensor response.
d. Exaggerated deep tendon reflexes.

726. Not an early sign of extramedullary spinal tumor:

a. Bladder involvement
b. Touch and proprioception lost on the side of lesion
c. Muscle dystrophy below lesion
d. None of the above

727. All of the following features are seen in myelopathies except –

a. Facial sensory impairment
b. Brisk jaw jerks
c. Brisk pectoral jerks
d. Bladder involvement

728. A middle –aged woman is involved in an automobile accident. Following this, she experiences pain around her umbilical region. In addition, she has bladder and bowel disturbances , as well as some paralysis of her lower abdominal muscles and some weakness of her leg muscles. A subsequent neurological examination is coupled with an MRI. What was the likely conclusion reached by the neurologist regarding the level of the lesion?

a. C1 to C2
b. C5 to C6
c. T1 to T2
d. T9 to T10

729. Which of the following is not true regarding cervical syringomyelia?

a. Extensorplantars
b. Absent biceps jerk
c. Hypertrophy of abductor pollicis brevis
d. Painless burning of hands.

730. In enlargement in central canal of spinal cord which group of muscles will be affected first :-

a. Cervical
b. Thoracic
c. Lumbar
d. Sacral

731. Which of the following is a feature of upper motor neuron lesion

a. Disuse atrophy
b. Denervation atrophy
c. Fasciculation
d. Plantar absent

714. d	715. c	716. b	717. b	718. d	719. b	720. a	721. a	722. b	723. b	724. b
725. a	726. a	727. b	728. d	729. c	730. a	731. a				

732. Dermatome of inguinal ligament is-

a. L1 b. T12
c. L2 d. T10

733. Dermatome of umbilicus is-

a. L1 b. T12
c. L2 d. T10

734. Which of the following is not a clinical feature of Brown Sequard syndrome?

a. Ipsilateral loss of pain and temperature at the level of lesion
b. Contralateral loss of pain and temperature at the level of lesion
c. Ipsilateral exaggerated deep tendon reflexes below the level of lesion
d. Ipsilateral atrophy of muscles at the level of lesion

735. A 32 year old male brought to emergency department with history of stab injury followed by difficulty in walking. Neurological examination findings are -

	Right side		Left side	
	Upper limb	Lower limb	Upper limb	Lower limb
Tone	Normal	Clasp-knife spasticity	Normal	Normal
Power	5/5	1/5	5/5	5/5
Deep tendon Reflexes (Bicep, Tricep, supinator, knee, ankle)	Normal	Exaggerated	Normal	Normal
Pain and temperature sensation	Normal	Normal	Normal	Lost
Join position vibration	Normal	Lost	Normal	Normal
Plantar	--	Extensor	--	Flexor

What is the most probable diagnosis?

a. Syringomyelia of thoracic spinal cord
b. Hemisection of cervical spinal cord on right side
c. Hemisection of thoracic spinal cord on right side
d. Hemisection of thoracic spinal cord on left side

736. A 32 year old male brought to emergency department with history of stab injury followed by difficulty in walking. Neurological examination findings are –

	Right side		Left side	
	Upper limb	Lower limb	Upper limb	Lower limb
Tone	Flaccidity	Clasp-knife spasticity	Normal	Normal
Power	0/5	1/5	5/5	5/5
Deep tendon Reflexes (Bicep, Tricep, supinator, knee, ankle)	Lost	Exaggerated	Normal	Normal
Pain and temperature sensation	Lost	Normal	Lost on C7-C8 Normal on C5C6	Lost
Join position vibration	Lost	Lost	Normal	Normal
Plantar	--	Extensor	--	Flexor

What is the most probable site of lesion?

a. Hemisection of cervical spinal cord on right side C5-C6
b. Hemisection of cervical spinal cord on right side C4-C5
c. Hemisection of cervical spinal cord on right side C7-C8
d. Hemisection of cervical spinal cord on right side C5-C8

737. A 40 year old diabetic female came with repetitive painless injuries on both hands. On examination pain and temperature are lost in both upper limbs and upper part of trunk. While pain and temperature normally present in both lower limbs, lower part of trunk and face. Joint position, vibration sensations are preserved in all 4 limbs including trunk. Power and tone are normal in all 4 limbs. What is the most probable diagnosis?

a. Diabetic neuropathy
b. Syringomyelia
c. Subacute combined neurodegeneration
d. Hysteria

732. b	733. d	734. b	735. c	736. d	737. b

738. In above case what investigation should be done to confirm your diagnosis?
a. MRI Brain plus spinal cord
b. CT scan brain plus spinal cord
c. MRI cervical spine
d. MRI whole spine

739. A 46 year old male came with severe lower back pain which is radiating towards right knee. On examination pain, temperature and proprioception sensations are impaired in right lower limb while normal in left. Power in 3/5 in right lower limb and 5/5 in left. Examination of both upper limbs are normal. What is most probable diagnosis?
a. Compressive mylopathy at lumbar region
b. Non-Compressive mylopathy at lumbar region
c. Acute transverse myelitis
d. Buillian barre syndrome

740. Which among the following does not cause exaggerated jaw reflex
a. Multiple sclerosis
b. Motor neuron disease
c. Pseudobulbar palsy
d. Syringomyelia

741. Type of sensation lost on same side in Brown-sequard syndrome is
a. Pain
b. Touch
c. Proprioception
d. Temperature

742. Which of the following is not a clinical feature of extramedullary tumour?
a. Early corticospinal signs and paralysis
b. Root pain
c. Bladder involvement
d. Sacral sparing

743. A 52 year old male came with complaint of retention of urine and abdominal discomfort. On examination all sensations are lost only in perianal area bilaterally while normally present on other parts of body. Ankle reflex is lost bilaterally while knee reflex is normally present. Plantar is extensor bilaterally. What is most probable diagnosis?
a. Cauda equina
b. Conus medullaris
c. Syringomyelia
d. Subacute combined neurodegeneration.

744. A 40 year old male came with chief complaints of severe back pain radiating to left knee and difficulty in walking. On examination patient has loss of all sensations on left lower limb while right is normal. Power in left lower limb is 4/5 and in all other limbs it is 5/5. Ankle and knee both reflexes are lost in left side while right side reflexes are normal. Plantar response is absent in left side while flexor on right. What is most probable diagnosis
a. Cauda equina
b. Conus medullaris
c. Syringomyelia
d. Subacute combined neurodegeneration.

745. Cervical cord injury does not cause-
a. Horner's syndrome
b. Loss of sensation over face
c. Spasticity of foot
d. Wasting with fasciculations of lower limb

746. Spastic paraplegia is caused by all except;
a. Vitamin B12 deficiency
b. Cervical spondylosis
c. Lead poisoning
d. Motor neuron disease

747. Beevor's sign is seen in –
a. Abdominal muscles
b. Facial muscles
c. Respiratory muscles
d. Hand muscles

748. Most common drug used in spasticity in patients with spinal cord injury is
a. Diazepam
b. Tinazidine
c. Salicylates
d. Baclofen

Facial Nerve

749. Facial nerve palsy is associated with all of the following except-
a. Bell's palsy
b. Ramsay Hunt syndrome
c. Melkersson Rosenthal syndrome
d. Todd's paralysis

750. Melkersson Rosenthal syndrome is
a. Recurrent facial nerve palsy plus permanent facial edema
b. Recurrent facial edema with permanent facial nerve palsy
c. 7^{th} nerve palsy plus 8^{th} nerve palsy plus vesicular eruptions in external auditory canal
d. Lower motor neuron lesion of facial nerve

751. Which muscles are spared in upper motor neuron lesion of facial nerve?
a. Frontalis and orbicularusocculi
b. Frontalis and Buccinator
c. Frontalis and orbicularis oris
d. Frontalis and Zygomaticus

752. Which of the following sentence is false regarding facial nerve
a. It gives parasympathetic supply to lacrimal glands
b. Frontalis and orbicularis oculi have bilateral cortical presentation
c. Sarcoidosis is associated with bilateral facial nerve palsy
d. Contralateral lower face is paralysed in LMN lesion of facial nerve

738. b	739. a	740. d	741. c	742. d	743. b	744. a	745. d	746. c	747. a	748. d
749. d	750. a	751. a	752. d							

Trigeminal Nerve

753. Which of the following branch of trigeminal nerve is rarely involved in trigeminal neuralgia?

a. Ophthalmic
b. Maxillary
c. Mandibular
d. Cervical

754. Largest cranial nerve is

a. Facial
b. Trigeminal nerve
c. Vagus
d. Hypoglossal

755. Trigeminal neuralgia is also called as

a. Cluster tic
b. Jaw winking
c. Tic douloureux
d. Cluster tic

756. A 35 year old female came with complaints of repetitive excruciating paroxysms of pain in lips, gums and cheeks. Episodes of pain lasts for 30 secs to 2 mins. Patient also gives history of exacerbation of pain on washing of face. What is the most probable diagnosis?

a. Cluster tic
b. Cluster headache
c. SUNCT
d. Tic douloureux

757. Drug of choice for trigeminal neuralgia

a. Carbamazepine
b. Lamotrigine
c. Phenytoin
d. Valproate

758. A patient presents with recurrent episodes of sharp pain over his right cheek that is precipitated on chewing. Between attacks patient is otherwise normal. The most probable diagnosis is-

a. Preherpetic neuralgia
b. Trigeminal neuralgia
c. Mumps
d. Thalamic syndrome

Multiple Sclerosis

759. All of the following drugs are approved for Relapsing Remitting Multiple sclerosis Except

a. Mycophenolate mofetil
b. Mitoxantrone
c. Teriflunomide
d. Alemtuzumab

760. Which of the following is false about one and half syndrome?

a. Contralateral abductor palsy
b. Ipsilateral abductor palsy
c. Ipsilateral adductor palsy
d. Lesion is in MLF and 6th nerve nucleus

761. Uthoff's symptoms in Multiple sclerosis like visual blurring during hot shower bath are due to..

a. Increased redistribution of potassium channel along the naked axon
b. Increased redistribution of sodium channel along the naked axon
c. Increased redistribution of calcium channel along the naked axon
d. Increased redistribution of chloride channel along the naked axon

762. Which of the following is false regarding Internuclear ophthalmoplegia?

a. Ipsilateral Nystagmus
b. Lesion is in MLF
c. Ipsilateral adductor palsy
d. Diplopia

763. A young woman in her early twenties experiences loss of sensation in her legs and weakness in her limbs. A neurological examination indicates some spasticity of the limbs as well. the neurologist examination indicates some spasticity of the limbs as well. The neurologist makes a preliminary diagnosis of early multiple sclerosis (MS). Assuming that this diagnosis is correct, which of the following best accounts for the diminution of sensory and motor functions?

a. Loss of Schwann cells in peripheral neurons
b. An overall loss of dopaminergic release throughout the brain and spinal cord
c. Loss of peripheral cholinergic neurons
d. Demyelination of CNS neurons

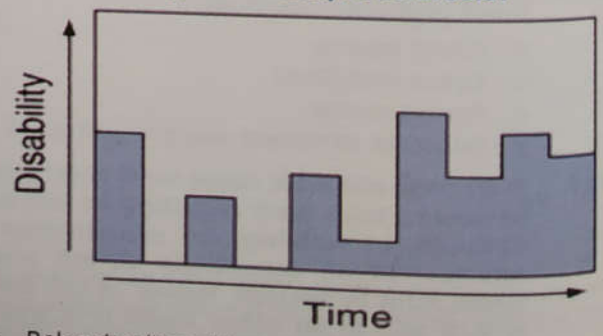
764. Diplopia in multiple sclerosis is due to

a. Optic neuritis
b. Asymmetric involvement of abducens nerve
c. Asymmetric involvement of oculomotor nerve
d. Internuclear ophthalmoplegia

765. Most common type of multiple sclerosis is

a. Relapsing multiple sclerosis
b. Secondary progressive multiple sclerosis
c. Primary progressive multiple sclerosis
d. Progressive relapsing multiple sclerosis

766. Identify the type of multiple sclerosis?

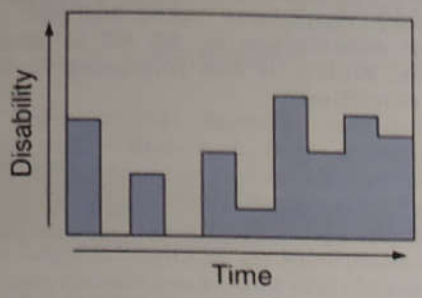


a. Relapsing/Remitting multiple sclerosis
b. Relapsing or bout onset multiple sclerosis
c. Secondary progressive multiple sclerosis
d. Progressive relapsing multiple sclerosis

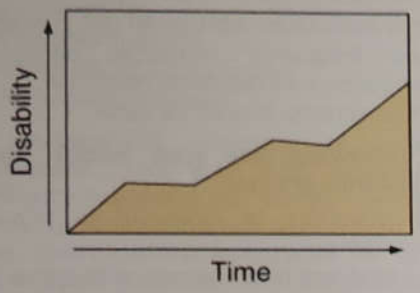
753. a	754. b	755. c	756. d	757. a	758. b	759. a	760. a	761. b	762. a	763. d
764. d	765. a	766. b								

767. Which of the following is secondary progressive multiple sclerosis?

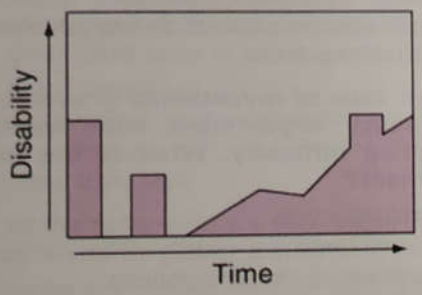
a.



b.



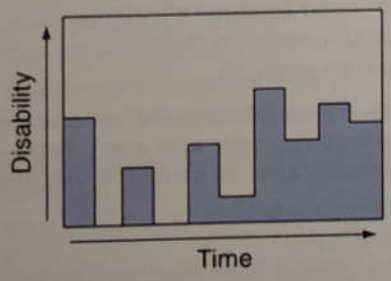
c.



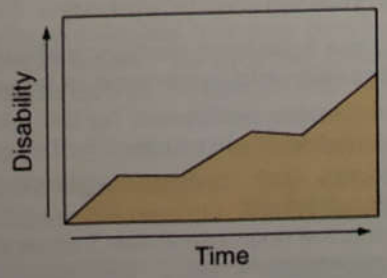
d. None of these

768. Which of the following is primary progressive multiple sclerosis?

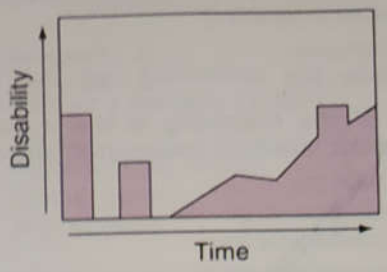
a.



b.



c.



d. None of these

GBS and neuropathies

769. Which of the following is not found in Miller Fisher syndrome?

a. Ataxia
b. Areflexia of limbs
c. Weakness of limbs
d. Ophthalmoplegia

770. Miller Fisher syndrome (MFS) is strongly associated with which of the following antibodies?

a. GQ1a
b. GQ1b
c. GQ1c
d. GQ1d

771. Which of the following statements about Gullain-Barre syndrome (GBS) is false?

a. Bladder involvement occurs in severe cases
b. Anti GD1a antibodies are found in patients of Acute Motor Axonal Neuropathy (AMAN) subtype of GBS
c. Glucocorticoids are effective in GBS
d. Facial diparesis found in 50% of cases

772. Treatment of choice for GBS-

a. Intravenous immunoglobulin
b. Intravenous Methylprednisolone
c. Intravenous Cyclophosphamide
d. Rituximab

773. All are true about peripheral neuropathy except

a. Glove and stocking anaesthesia
b. Proximal muscle weakness
c. Nerve conduction deficit
d. Decreased reflexes

774. Which of the following types of neuropathy are seen in diabetes?

a. Distal symmetric sensory neuropathy
b. Autonomic neuropathy
c. Mononeuropathy
d. All

775. The most common form of diabetic neuropathy is-

a. Distal symmetric sensory
b. Cranial nerve involvement
c. Autonomic neuropathy
d. Distal motor neuropathy

767. c	768. b	769. c	770. b	771. c	772. a	773. b	774. d	775. a

776. Which of the following drugs is used for painful diabetic neuropathy?

a. Duloxetiene
b. Pregabalin
c. Amitriptyline
d. All of the above

777. Which of the following is the most common antecedent infection associated with GBS?

a. Mycoplasma
b. Epstein-Barr virus
c. Chlamydia infection
d. Campylobacter jejuni

Motor Neuron Disease

778. Which of the following Motor neuron disease involves only upper motor neuron

a. Amyotrophic lateral sclerosis
b. Primary lateral sclerosis
c. Adult Tay-Sachs disease
d. Kennedy's disease

779. All of the following are motor neuron diseases involving predominantly lower motor neuron except

a. Multifocal motor neuropathy with conduction block
b. Adult Tay Sach's disease
c. Kennedy's disease
d. Familial spastic paraplegia

780. Amyotropic lateral sclerosis can be diagnosed by all of the following except-

a. Wasting of muscle
b. Exaggerated deep tendon reflexes
c. Absent deep tendon reflexes
d. Bladder involvement

781. All of the following are never involved structures in MND except

a. Bladder
b. Nuclei of cranial nerves
c. Ocular muscles
d. Cognition

782. Which of the following represents the site of lesion in motor neuron disease:

a. Anterior horn cells
b. Peripheral nerve
c. Spinothalamic tract
d. Spinocerebellar tract

783. All of the following are features of Amyotrophic lateral sclerosis Except

a. More common in male than female
b. Death of posterior horn cell neurons
c. Death of neurons in motor cortex in cerebral hemisphere
d. Bladder is not involved

Neuromuscular Junction Disorders

784. A 45 year old male presents with 2 year history of progressive weakness and dry mouth. On physical examination, he has bilateral proximal arm and leg weakness along with absent reflexes. On nerve conduction testing sensory responses were normal. Repetitive nerve stimulation at 50 HZ is shown in the figure. Which of the following is false about this condition?

a. Antibodies are produced against P/Q type calcium channels at motor nerve terminal.
b. It is associated with small cell cancer of lung
c. Low frequency repetitive nerve stimulation produces a incremental response
d. Thymectomy should be done

785. The following are true about treatment of myasthenia gravis:

a. Thymectomy is indicated in the absence of thymoma
b. Routine use of glucocorticoids is not indicated
c. Immunosuppressants like azathioprine are used only in myesthenic crisis
d. MuSK positive patients go into complete remission with thymectomy

786. Known case of myasthenia gravis came in the emergency department with weakness and breathing difficulty. What is the first line of treatment?

a. Pyridostigmine
b. Thymectomy
c. Intravenous immunoglobulin
d. Glucocorticoids

787. All are clinical features of myasthenia gravis Except

a. Asymmetrical ptosis
b. Absent deep tendon reflexes
c. Proximal muscle involvement
d. Worsen by exertion

788. A thirty five year old female has proximal muscle weakness of , ptosis and easy fatigability. The gold standard test to confirm the diagnosis is-

a. Edrophonium test
b. Muscle biopsy
c. SFEMG (Single fiber electromyography)
d. Acetyl choline receptor antibody

789. Which of the following sentence about Lambert-Eaton Myaesthenic syndrome is false?

a. Tensilon test is positive
b. Associated with dry mouth
c. Antibodies are present against presynaptic calcium channels
d. Incremental response in low frequency repetitive nerve stimulation test.

776. d	777. d	778. b	779. d	780. d	781. b	782. a	783. b	784. d	785. a	786. c
787. b	788. c	789. d								

790. Myasthenia gravis is caused by dysfunction of

a. Pineal gland
b. Thymus gland
c. Pituitary gland
d. Parathyroid gland

Myopathies

791. A 64-year-old woman is evaluated for weakness. She has had several weeks of difficulty brushing her teeth, combing her hair, climbing steps. She has also noted a rash on her face. Examination is notable forerthyematous flat topped papules on interphalangeal joints. Serum creatinine kinase (CK) is elevated. What is the probable diagnosis?

a. Polymyositis
b. Dermatomyositis
c. Inclusion body myositis
d. Myaesthenia Gravis

792. A 64-year-old woman is evaluated for weakness. She has had several weeks of difficulty brushing her teeth, combing her hair, climbing steps. She has also noted a rash on her face. Examination is notable for erthyematous flat topped papules on interphalangeal joints. Serum creatinine kinase (CK) is elevated. Initially treatment started with high dose prednisone but it was not effective. What will be your next step in management?

a. Mycophenolate
b. Intravenous immunoglobulin
c. Rituximab
d. Plasmapheresis

793. All of the following are true regarding Inclusion body myositis (IBM) EXCEPT

a. Males are more commonly affected than females
b. Phyrangeal muscles are affected
c. Muscle biopsy shows perifascicular inflammation
d. IBM is resistant to immunosuppressive therapies

794. Duehenne muscular dystrophy is a disease of:

a. Neuromusculer junction
b. Sarcolemmal proteins
c. Muscle contractile proteins
d. Disuse atrophy due to muscle weakness.

795. Which of the following nerve is least commonly involved in MG:-

a. III
b. IX
c. X
d. XII

796. A 38 year old female patient with facial and ocular weakness has just been diagnosed with MG.You intend to intitiate therapy with anti-cholinesterase medications and glucocorti-coids. All of the following tests are necessary before instituting this therapy except:-

a. MRI mediastenum
b. TSH levels
c. Tuberculin test
d. Lumbar puncture

Alzheimere's Dementia

797. All of the following are risk factors for Alzheimer's disease EXCEPT

a. Old age
b. Positive family history
c. Female gender
d. APO E2 gene

798. "Alien hand" phenomenon is a feature of?

a. Progressive Supranuclear Palsy
b. Lewy Body dementia
c. Corticobasal Degeneration
d. Alzheimer's Dementia

799. An analysis was undertaken of the histological, pathological, and neurochemical alterations in the brains of patients who died of Alzheimer disease. Following examination of the brain. Which of the following would most likely be present in the affected regions?

a. A decrease in substance P in the hypothalamus and brainstem reticular formation
b. Marked degeneration of most myelinated pathways
c. Amyloid deposits and neurofibrillary tangles
d. Marked retrograde degeneration in sensory neurons of the brainstem

800. Chromosomal anomaly associated with Alzheimer's dementia is

a. Trisomy 18
b. Patau syndrome
c. Trisomy 21
d. Turner's syndrome

Miscellaneous

801. Triad of Normal pressure hydrocephalus includes-

a. Tremors, aphasia, dementia
b. Ataxia, Aphasia, gait disorder
c. Ataxia, urinary incontinence, dementia
d. Ataxia, urinary incontinence, dysarthria

802. Which of the following clinical feature is least common in friedreich ataxia

a. Cardiomyopathy
b. DM
c. Scoliosis
d. Mental retardation

803. In progressive multifocal leucoencehalopathy, which of the following is not involved?

a. Frontal cortex
b. Cerebellum
c. Mid-brain
d. Spinal cord

804. Which of the following drug is used in treatment of SSPE?

a. Acyclovir
b. Mirtazapine
c. Isoprinosine
d. Foscornet

790. b	792. a	793. c	794. b	795. b	796. d	797. d	798. c	799. c	800. c	801. c
802. d	803. d	804. c								

805. Which of the following is false about progressive multifocal leukoencephalopathy?

a. Occurs in Natalizumab treated Multiple sclerosis patients
b. It is due to JC virus infection
c. Isoprinosine prolongs the survival
d. Homonymous hemianopia is most common clinical feature

806. Which of the following is not a manifestation of subacute sclerosing panencephalitis?

a. Fever
b. Poor school performance
c. Focal or generalized or myoclonic seizures
d. Visual disturbance

807. Which of the following drugs is used in the treatment of subacute sclerosing panencephalitis (SSPE)?

a. Acyclovir
b. Isoprinosine
c. Mirtazapine
d. Praziquantel

808. Most common parasitic disease of the CNS worldwide is?

a. Neurocysticercosis
b. Toxoplasmosis
c. Schistosomiasis
d. Amebiasis

809. A 12-year-old boy presents to the outpatient department with history of progressively increasing difficulty in walking and frequent falls. Physical examination reveals an ataxic gait. All deep tendon reflexes were observed to be absent while the plantar response was 'extensor'. Blood investigations showed high sugar level. What is the most likely diagnosis?

a. Friedreich's ataxia
b. Subacute combined degeneration of cord (SACD)
c. Becker's muscular dystrophy
d. Tabes dorsalis

810. A 12 years old girl with tremors and emotional liability has golden brown discolouration in Descemet's membrane. The most likely diagnosis is:

a. Fabry's disease
b. Wilson's disease
c. Glycogen storage disease
d. Acute rheumatic fever

811. Which of the following is false regarding essential tremors?

a. It is commonest movement disorder
b. Manifest as postural or action tremor
c. Treatment is propranolol
d. Frequency is 4 to 6 HZ

812. Horner's syndrome is characterized by all of the following except:

a. Miosis
b. Enophthalmos
c. Ptosis
d. Cycloplegia

813. All of the following are features of Friadreich ataxia except

a. Progressive ataxia is the most common presentation
b. Cardiomyopathy is common association
c. Diabetes mellitus may be associated
d. Extensor plantar with brisk lower limb reflexes

814. Bilateral loss of ankle jerk and extensor plantar response is seen in

a. Amyotrophic lateral sclerosis
b. Friedrich ataxia
c. Tabes dorsalis
d. Lead poisoning

815. Which of the following region of spinal cord is involved first in Friedrich's ataxia?

a. Dorsal root ganglion
b. Spinal tracts
c. Peripheral nerve
d. Cerebellum

816. Vitamin B12 Deficiency can give rise to all of the following except

a. Myelopathy
b. Optic atrophy
c. Peripheral neuropathy
d. Myopathy

817. A 65 year old man presents with anemia, posterior column dysfunction and plantar extensor. Which of the following is the likely cause

a. SSPE
b. Multiple sclerosis
c. Vitamin B1 deficiency
d. Vitamin B12 deficiency

818. Which of the following is not true about tabes dorsalis?

a. Seen in neurosyphilis
b. Deep tendon reflexes are brisk
c. Loss of vibration sense
d. Bladder involvement

819. All are features of wernicke's encephalopathy Except

a. Cogwheel rigidity
b. Alteration in mental function
c. Ophthalmoplegia
d. Ataxia

820. Which of the following is not involved in Wernicke's encephalopathy?

a. Mamillary body
b. Thalamus
c. Periventricular grey matter
d. Hippocampus

805. c	806. a	807. b	808. a	809. a	810. d	811. d	812. d	813. d	814. b	815. a
816. d	817. d	818. b	819. a	820. d						

Headache

620. B. Common migraine

CLASSIC MIGRAINE – migraine with aura
COMMON MIGRAINE – migraine without aura
ACEPHALGIC MIGRAINE – migraine without headache or mild headache
BRAINSTEM MIGRAINE- migraine with prominent brainstem symptoms
Classification of migraine-

1. Migraine
- 1.1 Migraine without aura
- 1.2 Migraine with aura
  - 1.2.1 Migraine with typical aura
    - 1.2.1.1 Typical aura with headache
    - 1.2.1.2 Typical aura without headache
  - 1.2.2 Migraine with brainstem aura
  - 1.2.3 Hemiplegic migraine
    - 1.2.3.1 Familial hemiplegic migraine (FHM)
      - 1.2.3.1.1 Familial hemiplegic migraine type 1
      - 1.2.3.1.2 Familial hemiplegic migraine type 2
      - 1.2.3.1.3 Familial hemiplegic migraine type 3
    - 1.2.3.2 Sporadic hemiplegic migraine
  - 1.2.4 Retinal migraine
- 1.3 Chronic migraine
- 1.4 Complications of migraine
  - 1.4.1 Status migrainosus
  - 1.4.2 Persistent aura without infarction
  - 1.4.3 Migrainous infarction
  - 1.4.4 Migraine aura-triggered seizure
- 1.5 Probable migraine
  - 1.5.1 Probable migraine without aura
  - 1.5.2 Probable migraine with aura
- 1.6 Episodic syndromes that may be associated with migraine
  - 1.6.1 Recurrent gastrointestinal disturbance
    - 1.6.1.1 Cyclical vomiting syndrome
    - 1.6.1.2 Abdominal migraine
  - 1.6.2 Benign paroxysmal vertigo
  - 1.6.3 Benign paroxysmal torticollis

621. C. Headache

Headache is least prominent symptom in acephalgic migraine. HARRISON 19TH PAGE 2589

622. C. Tension is not an etiology

Tension type headache is featureless headache i.e. without nausea, vomiting etc
Amitriptyline is approved drug for chronic tension type headache
When headache occurs more than 15 days per month it is called as chronic tension type headache.
There is no clear evidence that tension is an etiology.

623. C. Not associated with photophobia, phonophobia

It consist of Hemicrania continua, cluster headache, paroxysmal hemicranias and SUNCT/SUNA
It is associated with pituitary tumors.
It is associated with migrainous features i.e. photophobia, phonophobia, nausea, vomiting.

624. B. associated with bilateral photophobia and phonophobia

Cluster Headache

Central pacemaker neurons in the hypothalamus are involved in pathology
It is associated with **unilateral** photophobia and phonophobia i.emigrainous features
Periodicity is the core feature of cluster headache, at least one of the daily attacks of pain recurs at about the same hour each day.
It is associated with ipsilateral symptoms of cranial parasympathetic autonomic activation: conjuctival injection, lacrimation,rhinorrhea or nasal congestion or cranial sympathetic dysfunction such as ptosis.

625. C. Dysfunction of monoaminergic sensory control systems in brainstem and hypothalamus

The patient describes a typical history for migraine headaches,the second most common cause of headache and most common cause of headache-relateddisability worldwide. Diagnostic criteria for migraine have been simplified recently. To diagnose migraine,an individual should complain of repeated attacks of headache lasting from 4–72 hours, with anormal physical examination, and no other clear cause. The headache should be associated withtwo of the following four features: unilateral pain, throbbing pain, aggravation by movement,and moderate to severe intensity. In addition, the individual should complain of eithernausea/vomiting or phonophobia and photophobia. Most individuals with migraine headachescan identify triggers associated with an attack. Common triggers include lack of sleep orexcessive sleep, stress, hormonal fluctuations, alcohol, and barometric pressures changes. Thepathophysiology that underlies migraine is increasingly understood as a dysfunction of themonoaminergic sensory control systems located in the brainstem and hypothalamus. Activationof cells in the trigeminal nucleus leads to release of vasoactive neuropeptides at vasculartermination of the trigeminal nerve and within the trigeminal nucleus. These neurons alsoproject centrally, crossing the midline, to project to ventrobasal and posterior nuclei of theposterior thalamus. The primary vasoactive peptide that has been implicated is calcitonin generelatedpeptide (CGRP). A new class of medication called gepants is being developed to act as anantagonist at the CGRP receptor and has been demonstrated to be effective against migraine inearly clinical trials. The most

common medications used for acute relief of severe migraine painare the triptans, potent agonists of the 5-hydroxytryptamine (serotonin) receptor, implicatingserotonin in pathogenesis of migraine as well. It is thought that serotonin is necessary fornociceptive signaling in the trigeminovascular system and that triptans arrest this pathway.Finally, dopamine may also play a role in pathogenesis of migraine because migraine symptomscan be induced by dopamine stimulation, and individuals with migraine have beendemonstrated to have hypersensitivity to dopamine agonists at doses that do not affect non–migraine-affected persons. In the past, the "vascular theory" of migraine was frequentlyespoused, with the cause of migraine thought to be related to abnormal cerebral vasodilation.This theory has been discounted as the pathogenesis has become more widely understood.

626. D Sumatriptan is used for chronic migraine

Sumatriptan is used for acute attack of migraine.

627. C. Blindness is a preventable complication.

Temporal (giant cell) arteritis is **an inflammatory disorder of arteries that frequently involves the extracranial carotid circulation.** This is a common **disorder of the elderly**; the average age of onset is 70 years, and **women** account for 65% of cases. **About half of patients** with untreated temporal arteritis develop blindness due to involvement of the *ophthalmic artery and its branches*; indeed, the ischemic optic neuropathy induced by giant cell arteritis is the major cause of rapidly developing bilateral blindness in patients over 60 years of age. Typical presenting symptoms include **headache, generalized body ache, jaw claudication, fever, and weight loss.** Headache is the *dominant symptom* and often appears in association with malaise and muscle aches. **Scalp tenderness** is present, as is tenderness of the **temporal** or, less commonly, the occipital arteries. The**erythrocyte sedimentation rate** (ESR) is often, though not always, elevated; a normal ESR does not exclude giant cell arteritis. A **temporal artery biopsy** and the initiation of prednisone at **80 mg daily for 4 to 6 weeks** should be instituted when clinical suspicion is high. Because **treatment with glucocorticoids** is effective in preventing this complication, prompt recognition of this disorder is important.

628. A. Idiopathic

629. A Temporal arteritis

Unilateral headache, thick cord like structure on lateral side of the head-inflammed artery, The ESR is 80 mm/hr. suggest Temporal arteritis.

630. C Amitryptiline

Drug of choice for acute attack of migraine is sumatriptan.

631. B Convulsion

features of pseudotumor cerebri are
A. associated with hypervitaminosis A
C. Papilloedema
D. seen in young obese female

Seizures and Epilepsy

632. A. Usually family history of epilepsy is absent

MTLE is most common syndrome associated with focal seizures with dyscognitive features. Hippocampal sclerosis is characteristic MRI finding It is refractory to treatment with anticonvulsants but respond well to surgical intervention.

Characteristics of MTLE are

History	
History of febrile seizures	Rare generalized seizures
Family history of epilepsy	Seizures may remit and reappear
Early onset	Seizures often intractable
Clinical Observations	
Aura common	Postictal disorientation
Behavioral arrest/stare	Memory loss
Complex automatisms	Dysphasia (with focus in dominant hemisphere)
Unilateral posturing	
Laboratory Studies	
Unilateral or bilateral anterror temporal spikes on EEG	
Hypometabolism on interictal PET	
Hypoperfusiion on interictal SPECT	
Material-specific memory deficits on intracranial amobarbital (Wada) test	
MRI Findings	
Small hippocampus with increased signal on T2-weighted sequences	
Small temporal lobe	
Enlarged temporal horn	
Pathologic Findings	
Highly selective loss of specific cell populations within hippocampus in most cases	

Abbreviations: EEG, electroencephalogram; MRI, magnetic resonance imaging; PET, positron emission tomography; SPECT, single-photon emission computed tomography.

633. C. Continue only CBZ and treat the mother with oral vitamin k in last 2 weeks and infant with intramuscular vitamin K at birth

Pregnancy and Epilepsy

Because the potential harm of uncontrolled convulsive seizureson the mother and fetus is considered greater than the teratogeniceffects of antiepileptic drugs, it is currently recommended that pregnantwomen be maintained on effective drug therapy. When possible, it seems prudent to have the patient on monotherapy at the lowesteffective dose, especially during the first trimester.

Patientsshould also take folate (1 -4 mg/d), because the antifolate effects ofanticonvulsants are thought to play a role in the development of neuraltube defects, although the benefits of this treatment remain unprovedin this setting.

Enzyme-inducing drugs such as phenytoin, carbamazepine, oxcarbazepine, topiramate, Phenobarbital and primidone cause a transientand reversible deficiency of vitamin K-dependent clottingfactors in -50% of newborn infants. Although neonatal hem-

orrhageis uncommon, the mother should be treated with oral vitamin K (20mg/d, phylloquinone) in the last 2 weeks of pregnancyand the infantshould receive intramuscular vitamin K (1 mg) at birth.

634. A. Phenytoin

Antiepileptic drugs appear to act primarily by blocking the initiationor spread of seizures. This occurs through a variety of mechanisms thatmodify the activity of ion channels or neurotransmitters.The mechanisms include inhibition of sodium dependent action potentials in a frequency-dependentmanner (e.g.phenytoin, carbamazepine, lamotrigine, topiramate, zonisamide, lacosamide, rufinamide). inhibition of voltage-gated Ca2+channels (phenytoin, Gabapentin, pregabalin), facilitating the openingof potassium channels (ezogabine), attenuation of glutamate activity (lamotrigine, topiramate, felbamate), potentiation of GABA receptorfunction (benzodiazepines and barbiturates), increase in the availability of GABA (valproic acid, gabapentin, tiagabine)and modulation of release of synaptic vesicles (levetiracetam). The two most effectivedrugs for absence seizures, ethosuximide and valproic acid. probablyact by inhibiting T -type Ca2+ channels in thalamic neurons.

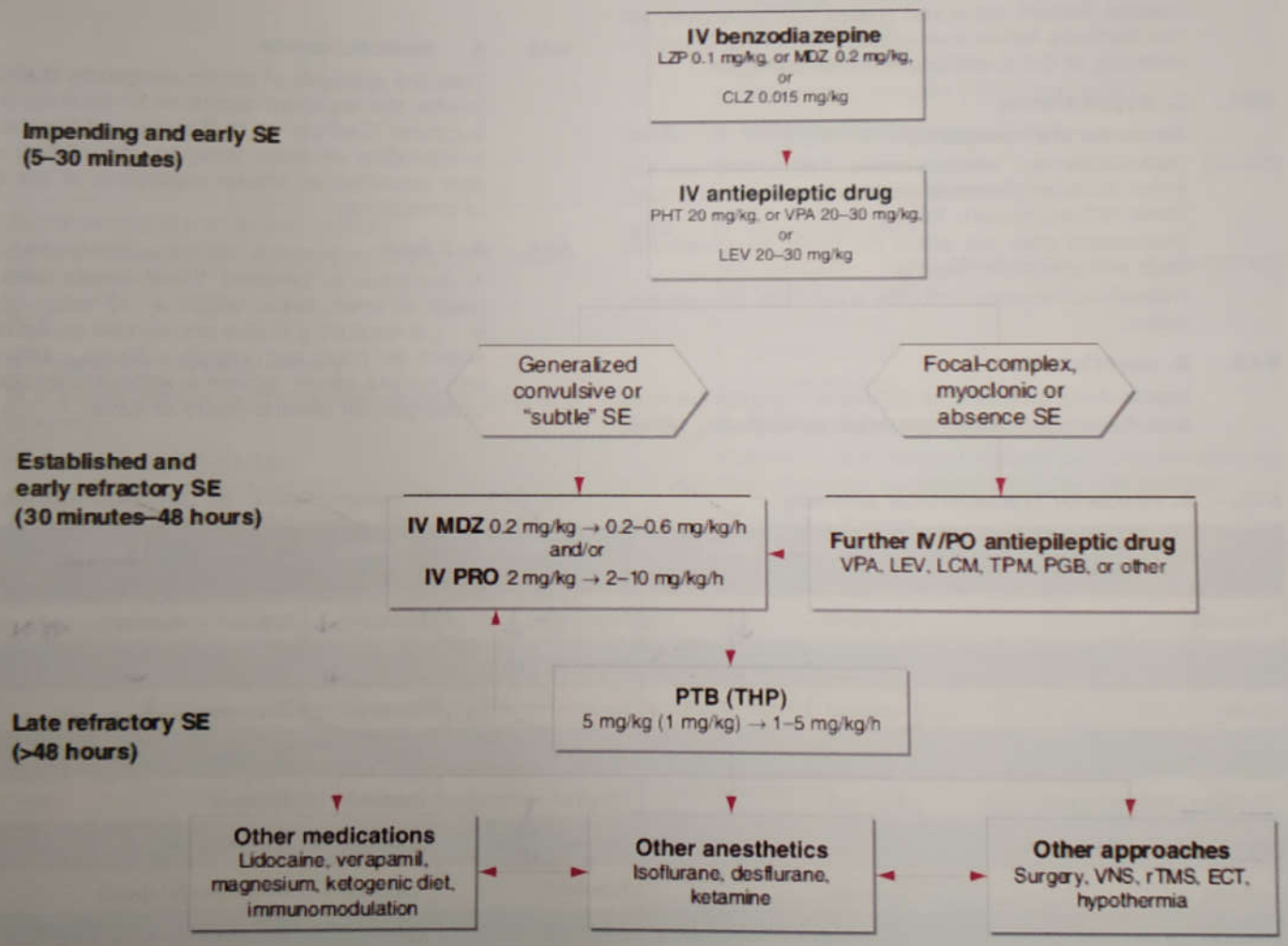
635. C. Ethosuximide

It is a typical absence seizure so drug of choice is ETHOSUXIMIDE.

636. C. Automatism

Automatism is not feature a of juvenile myoclonic epilepsy.

637. D. Carbamazepine



Management protocol for status epilepticus

638. D. Lorazepam

Lorazepam is treatment of choice for GTCS

639. D. Generalized seizure

A psychogenic seizure can give the appearance of an epileptic seizure but differs in that the EEG is roughly normal, lacking the characteristic EEG spiking present in epileptic seizures, and the appearance of an aura is typically absent. Accordingly, the most effective way of distinguishing between a psychogenic and epileptic seizure is through EEG monitoring. A complex partial seizure is characterized by a

confusional state with brief losses of consciousness. It is called a partial seizure because the seizure involves a localized region, reflected by jerks of the muscles of a specific part of the body. The focus of this seizure is typically in the temporal lobe, such as the amygdale, hippocampal formation, or adjoining cortical regions. A simple partial seizure does not involve loss of consciousness. Absence seizures are nonconvulsive seizures and are also called petit mal epilepsy. Generalized seizures typically involve many areas of the brain simultaneously and typically involve all of the limbs. The patient falls to the ground and loses consciousness.

640. A. Sudden brief loss of counciousness with loss of postural control.

Sudden brief loss of counciousness with loss of postural control.

Absence seizures are characterized by sudden brief lapses of consciousness without loss of postural control. Patient stare and ceases normal activity for few seconds return immediately to normal & has no memory of the event or post ictal confusion.

641. C. Hypokalemia

Seizures are caused by:

Hyponatremia, Hypocalcemia, Hypomagnesemia, Hypo- or hyperglycemia (epilepsiapartialis continua), Renal failure, Hepatic failure

(Potassium does not affect the brain, Hyponatremia does not affect the heart),

Hypophosphatemia – muscle weakness, drowsiness, coma.

642. B. Levetiracetam

Newer drug, Licensed as adjuvant in partial seizures

Non hepatotoxic, but excreted by kidneys. Hence dose reduction as per creatinine clearance. All other anti epileptics are hepatotoxic.

643. C. Topiramate

All antiepileptics cause weight gain except Topiramate

Topiramate and Na valproate is also used as second line therapy in migraine

644. C. Levetiracetam

Partial seizure will now be addressed as Focal seizure. Drugs to be used for its management are in order of preference Lamotrigine > Ox-CBZ>CBZ > Phenytoin > Levetiracetam (LOCPL-LOKPAL). The change in deciding the best drug is based on sideffect & efficacy profile, as like LOKPAL bill for us.

In the question, patient has hyponatremia & CBZ is well known to cause hyponatremia so it is to be avoided in the question.

Stroke

645. A. Embolic stroke

TIAs are episodes of stroke symptoms that last only briefly, the standard definition of duration is <24 h, but most TIAs last <1 h. If a relevant brain infarction is identified on brain imaging, the clinical entity is now classified as stroke regardless of the duration of symptoms.

646. A. 1 hour

A decrease in cerebral blood flowto zero causes death of brain tissue within 4- 10 min; values < 1 6 - 1 8 mL/100 g tissue per minute cause infarction within an hour and values <20 mL/ 100 g tissue per minute cause ischemia withoutinfarction unless prolonged for several hours or days.

647. B. Posterior transcortical aphasia

	Comprehension	Repetition of Spoken Language	Naming	Fluency
Wernicke's	Impaired	Impaired	Impaired	Presrved or increased
Broca's	Preserved (except grammar)	Impaired	Impaired	Decreased
Global	Impaired	Impaired	Impaired	Decreased
Conduction	Preserved	Impaired	Impaired	Decreased
Nonfluent (anterior) transcortical	Presrved	Presrved	Impaired	Impaired
Fluent (posterior) transcortical	Impaired	Presrved	Impaired	Preserved
Isolation	Impaired	Echolalia	Impaired	No purposeful speech
Anomic	Preserved	Preserved	Impaired	Preserved except for word-finding pauses

648. A. SAH

a. Sudden onset severe headache, hypertension, suggest SAH

b. ICH- moving all 4 limbs if parenchymal bleed then neurological deficit should be present

c. SDH- No history of trauma

d. TIA- No spontaneous recovery

649. B. Posterior communicating artery aneurysm with SAH

3rd nerve palsy..... posterior communicating artery & 3rd nerve are in close relation.

Headache suggest SAH

Risk of Stroke Following Transient Ischemic Attack: The ABCD² Score

Clinical Factor	Score
A: Ages 60 years	1
B: SBP >140 mmHg or DSP >90 mmHg	1
C: Clinical symptoms	
Unilateral weakness	2
Speech disturbance without weakness	1
D Duration	
>60 min	2
10-59 min	1
D: Diabetes (oral medications or insulin)	1
Total Score	**Sum Each Category**
ABCD² Score Total	3-Month Rate of Stroke (%)[a]
0	0
1	2
2	3
3	3
4	8
5	12
6	17
7	22

[a]Data ranges are from five cohorts.

Abbreviations: DBP, diastolic pressure; SBP systalic blood pressue

650. A. 7

651. D. Posterior cerebral artery

PCA supply medial temporal lobe, occipital lobe, and thalamus.

652. D. Platlet count < 1 lac

Administration of Intravenous Recombinant Tissue Plasminogen Activator (RtPA) For Acute Ischemic Stroke (AIS)[a]

Indication	Contraindication
Clinical diagnosis of stroke	Sustained BP >185/110 mmHg despite treatment
Onset of symptoms to time of drug administration <4,5 h[b]	Platelets <100,000; HCT <25%; glucose <50 or >400 mg/dL
CT scan showing no hemorrhage or edema of >1/3 of the MCA territory	Use of heparin within 48 h and prolonged PTT, or elevated INR
Age 18 > years	Rapidly improving symptoms
Consent by patient or surrogate	Prior stroke or head injury within 3 months; prior intracranial hemorrhage
	Major surgery in preceding 14 days
	Minor stroke symptoms
	Gastrointestinal bleeding in preceding 21 days
	Recent myocardial infarction Coma or stupor

653 A. Anterior cerebral artery

Blood supply of paracentral lobule is Anterior cerebral artery.

654. A. Contralateral foot weakness

A lesion in paracentral lobule causescontralateral foot weakness and uninhibitated bladder.

655. A. Prefrontal area of frontal lobe

Antisocial behaviour is a feature of damage toPrefrontal area of frontal lobe

656 D. Astereognosis

Components of Gerstmann Syndrome

- Dysgraphia
- Acalculia
- Finger agnosia or anomia
- Alexia
- Right left confusion

657. D. Apraxia

Lesion of temporal lobe produces

- Aphasia
- Quadrantopia
- Anterograde amnesia
- Wernicke's aphasia (dominant lobe)

658. A. Subarachnoid hemorrhage

Hunt and Hess scale is used for grading ofSubarachnoid hemorrhage.

659. D. Hyponatremia

3H therapy for treatment of subarachnoid hemorrhage consists of

- Hypertension
- Hemodilution
- Hypervolumia

660. B. Subdural hemorrhage

History of head injury followed bygradually progressive weakness suggests subdural hemorrhage.

661. B. In first 2 days

Risk of stroke after transient ischemic attack is high in first 2 days.

662. C.

Clinical Factor	Score
A: Age >60 years	1
B: SBP >140 mmHg or DBP >90 mmHg	1
C: Clinical symptoms	
Unilateral weakness	2
Speech disturbance without weakness	1
D: Duration	
>60 min	2
10-59 min	1
D: Diabetes (oral medicationsorinsulin)	1

663. C. < 20 ml/ 100 gm of brain tissue/ min

20 ml/ 100 gm of brain tissue/ min decrease in blood to brain is required to cause ischemia without infarction.

664. A. Embolic

Most epileptogenic stroke is Embolic.

665. D. Posterior cerebral artery

Posterior cerebral artery supplies

- Medial temporal lobe- amnesia
- Thalsmus- thalamic pain
- Medial side of occipital lobe- blindness

666. A. Temporal lobe

Prosopagnosia (inability to identify familiar faces) is due to lesion in temporal lobe (Fusiform gyrus).

667. B. Foville's syndrome

Midbrain syndromes are

- Weber syndrome
- Benedikt's syndrome
- Claude's syndrome
- Nothnagel's syndrome
- Parinaud's syndrome

668. A. Millard-Gubler syndrome

Ipsilateral Sixth nerve palsy, ipsilateral seventh nerve palsy and contralateral hemiplegia are features of Millard-Gubler syndrome.

669. A. 10-15 %.

Risk of stroke after TIA IS 10-15 % in first 3 months,with most events occurring in first 2 days.

670. C. Pons

671. C. VI, VII nerves and corticospinal tract on the right side

672. B. MCA.

Small lesion and large deficit implies DENSE HEMIPLEGIA .Such disease occurs if motor fibres at the ; level of internal capsule is involved i.e posterior limb.It is majoly supplied by MCA.

673. B. left lateral medullary syndrome

IPSILATERAL – Horner's syndrome, sensory loss on face, ataxia, 9,10,11 cranial nucleus involvement
Contralateral- pain and temp loss

Meningitis

674. B. Bacterial meningitis

Clinical features are of meningitis. CSF showing raised counts and protein. Normal CSF sugar = 2/3 of blood sugar. 2/3 of 133 = 88 but in this case it is 40 means decreased.

675. A. Viral meningitis

	Normal	Bacterial Meningitis	Viral Meningitis	Fungal Meningitisb	Parasitic Meningitis	Tuberculous Meningitis	Encephalitis
WBC count (per µL)	<5	>1000	25-500	40-600	150-2000	25-100	50-500
Differential of WBC	60-70% lymphocytes, <30% monocytes/ macrophages	↑ ↑ PMNs (> 80%)	Predominantly lymphocytesc	Lymphocytes or PMNs, depending on specific organism	↑ ↑ Eosinophils (>50%)d	Predominantly lymphocytesc	Predominantly lymphocytesc
Gram's stain	Negative	Positive (in >60% of cases)	Negative	↓ to normal	Normal	<50 h 75% of cases	Normal
Glucose (mg/ dL)	15-45	>100	20-80	150-300	50-200	100-200	50-100
Opening pressure (mmH2O)	50-180	>300	100-350	160-340	Normal	150-280	Normal to ↑
Common causes	–	Streptococcus pneumoniae, Neisseria meningitidis	Enteroviruses	Candida, Cryptococcus, and Aspergillus spp.	A nglostrongylus cantonensis, Gnathostoma spinigerum, Baylisascarls procyoms	Mycobacterium tuberculosis	Herpesviruses, enteroviruses, influenza virus, rabies virus

[a]Numbers indicate typical results, but actual results may vary. [b]Cerebrospinal fluid characteristics depend greatly on the specific organism. [c]Neutrophils may predominate early in the disease course, [d]Patients typically have striking eosinophilia as well. [e]Sensitivity can be increased by examination of a smear of protein coagulum (pellicle) and the use of acid-fast stains.

676. A. Intravenous ceftriaxone + vancomycin

Antibiotics used in empirical therapy

1. If patient is immunocompetent and age < 55 years then Ceftriaxone plus Vancomycin
2. If patient is immunocompromised or age > 55 years or alcoholic then Ceftriaxone plus Vancomycin plus Ampicillin

677. B. Intravenous ceftriaxone + vancomycin + Ampicillin

678. C. Irregular respiration

Classic triad of meningitis consists of

- Headache
- Fever
- Neck stiffness

679. D. Hypotension

Cushing reflex in raised ICP is

- Bradycardia
- Hypertension
- Irregular respiration

680. B. RTPCR from CSF

Diagnostic procedure of choice for viral meningitis caused by enterovirus isRTPCR from CSF.

681. B. HSV

'Mollaret's meningitis' is due to HSV

682. C. low opening pressure

Opening pressure is high.

683. D. Enterovirus

Acyclovir is used inHSV, EBV, VZV.

684. B. CSF examination

Reasons for worsening sensorioum in such patient can be :-

a).Hydrocephalus.

b).Infarct secondary to vasculitis.

c).Hyponatremia secondary to SIADH.

d).Hepatic encephalopathy secondary to ATT induced hepatitis.

e).May be case of superimposed meningitis by some other organism like fungus,Non TB bacteria.

f).May be a case of MDR TB.

For ruling out hydrocephalus obviously NCCT brain is sufficient enough.

In a case of suspected infarct MRI brain is best tool.You might claim that MRI will rule out infarct & hydrocephalus in one sitting.But the protocol in any standard hospital is CT then MRI the word urgent might make you again feel that MRI is not always available .But dear friends in AIIMS everything is urgently available without any delay.

Hyponatremia can be easily picked up by doing serum electrolytes.

LFT will give us good information about hepatitis.

As per the question patient is a well established case of tubercular meningitis on ATT for last one month with good compliance.One thing justified is that patient is suffering with only TBM no other illness prior to this.Also good compliance had a favourable response in such patient ,If atall patient was a case of MDR TB then he would have not responded to medications atall in first month & good compliance again doesn't lead to MDR TB either.

Drug resistance in TB may be either primary (in a patient who has never been exposed to anti TB drugs) or acquired.Acquired drug resistance is the consequence of inappropriate or irregular therapy.

In the situation given patient is a responder with good compliance so doing a CSF examination to rule out MDR TB is not a bright idea.

Also if patient has hydrocephalus or might have developed tuberculoma then doing CSF is not advisable urgently.

Before arriving on any conclusion please read the question, examiner is not asking which investigation is not done but question asked is which is not urgently done.

Infections

685. B. They affect only nervous system

PRION DISEASE

- Kuru is due to consumption of brain from dead relatives during ritualistic canabalism
- They affect only nervous system
- They are devoid of nuclear material
- Immune system is not involved

686. A. Scrapie

HUMAN PRION DISEASE:

- Fatal familial insomnia
- Kuru
- Creutzfeldt-Jakob disease
- Gerstmann-StraussierScheinker disease

687. A. Creutzfeldt Jacob disease

Most common human prion disease is Creutzfeldt Jacob disease.

Parkinson's Disease

688. B. Progressive Supranuclear palsy

Recurrent falls suggest downward gaze palsy. Presence of mid brain atrophy.

689. C. Loss of taste

loss of taste is not feature of Pk

Non-motor features are depression, anxiety, cognitive impairment, sleep disturbances, sensory abnormalities, loss of smell& disturbed autonomic system.

690. B. Appear bilaterally first distally.

Rest tremor at a frequency of 4 to 6 Hz, typically appears unilaterally first distally involving digits and wrist with pill rolling character. Tremors usually spreads proximally, ipsilaterally and occasionally to the leg before crossing to other side. It may appear later in lips, tongue and jaw but spares the head and neck.

691. D. MPTP

MPTP (Methyl phenyl tetra hydropyridine) cause secondary parkinsonism. It is heroin byproduct and responsible for death of dopaminergic neurons

692. D. Phenytoin sodium

SECONDARY PARKINSONISM

1. Infectious: Post-encephalitic, acquired immunodeficiency syndrome, subacute sclerosing panencephalitis, Creutzfeldt-Jakob disease
2. Drugs: dopamine receptor blocking drugs (antipsychotic, antiemetic drugs), reserpine, tetrabenazine, α-methyldopa, lithium,
3. Toxins: MPTP, carbon monoxide, manganese, mercury, carbon disulfide, cyanide, methanol
4. Trauma: pugilistic encephalopathy

Others: parathyroid abnormalities, hepatocerebral degeneration, brain tumor, paraneoplastic etc

693. C. 50-70 %.

694. C. Pull test.

To assess postural instability the physician performs the pull test. Standing behind the patient, the examiner pulls the patient backward by the shoulders, carefully remaining close behind to prevent a fall. Once postural reflexes are impaired, there may be retropulsion or multiple backward steps in response to the postural perturbation. Later there is a tendancy to fall en bloc without retropulsion or even normal attempts to recover or to cushion the fall.

695. B. Clinical examination

696. D. Anosmia.

Non motor manifestations of PD: Anosmia, Sleep disturbances, Anxiety, Depression,
Psychoses with delusions, Autonomic disturbances, Dementia later in the disease.

697. C. Balance difficulties.

Cognitive symptoms, hypophonia, autonomic dysfunction & balance difficulties respond poorly to symptomatic therapy. While bradykinesia, tremor, rigidity & abnormal posture respond well.

698. A. Amantidine

Amantidineis used as anti-dyskinesia agent in parkinson's disease.

699. A. Deep brain stimulation of globus pallidus interna

Surgical treatment of parkinson's disease consists of Deep brain stimulation of globus pallidus interna

700. C. Antipsychotic drugs

Most common cause of secondary parkinsonism is antipsychotic drug

GAIT

701. A. Patient lurch on normal (non-paralysed) side

Lurching gait

- Patient lurch on paralysed side
- It is due to unilateral weakness of gluteus medius
- Fall of pelvis on non-paralysed (contralateral) side
- seen in polio

702. C. Extension at knee

SCISSORING GAIT

- Seen in cerebral palsy
- Adduction and internal rotation of hip
- Flexion at knee
- Plantar flexion at ankle

Hyperkinetic Movement Disorders

703. D. Frequency is 4 to 6 HZ

ESSENTIAL TREMORS

- It is commonest movement disorder
- Manifest as postural or action tremor
- Treatment is propanolol
- Frequency is 6 to 10 HZ

704. C. Early onset of memory loss

Huntington's disease :

- Chorea
- increased CAG repeats
- Seizure
- Dementia in last stages of disease

705. C. Dystonia is due to lesion in putamen

- Chorea is due to lesion in caudate nucleus
- Hemiballismus is due to lesion in subthalamic nucleus
- Dystonia is due to genetic mutations
- Athetosis is due to lesion in globus pallidus

706. C. Symptoms improved by alcohol

Restless leg syndrome

- Unpleasant sensations on the legs
- Symptoms begins with the rest
- Symptoms relief by movement
- Symptoms becomes worse in the evening or night

707. B. Essential tremors

Essential tremor is characterized by a relatively low frequency of 4 to 8 Hz. It involves both arms and may extend to the head. The tremor is reduced by movement such as walking. With intake of alcohol, and following treatment with a β – adrenergic antagonist, it is exaggerated during states of anxiety. In Parkinson disease, the face and lips are preferentially affected and dementia are prominent characteristics. Cere bellar ataxia (sometimes called intention tremor) occurs during an act of movement, when fine adjustments of the movement are required. Dystonia refers to persistent posture of the extremes of athetoid movement, in which the axial muscles are typically involved and the limb is placed in an unnatural position, futher, there may be retroflexion of the head or torsion of the spine

708. D. Tics

AKATHASIA: A subjective feeling of inner restlessness that is relieved by movements. (e.g. crossing and

uncrossing legs, rocking back and forth and pacing). TOC-Beta blockers.

ASTERIXIS: Sudden periods of cessation of muscle contraction, best seen when the patient's arms are extended in front.

ATHETOSIS: Slow, sinuous, writhing movements, usually of the distal parts of the limbs.Lesion – Globus Pallidus (GAP)

BALLISMUS: wild flinging, movements that represent large amplitude proximal choreiform movements. Ballismus is often unilateral (Hemiballismus). Lesion-STN.

CHOREA: Semipurposeful flowing movements that flit from one part of the body to another in a continuous and random pattern.Lesion-cuadate nucleus.

DYSKINESIA: A general term for any excessive movement. The term dyskinesia is often used as an abbreviation for "Tardive dyskinesia" (repetitive oral movements often seen in patients taking certain psychiatric medications).

DYSTONIA: Twisting movements that are often sustained for variable periods of time.

MYOCLONUS: Sudden, brief shock-like jerks.

TICS: Repetitive, stereotypic movements or sounds that are suppressible and that relieve a feeling of inner tension.

TREMOR: Regular, oscillatory movements that may be present at rest ore with action.

709. D. Distal part of extremeties

710. D. I (ii) II (i) III (iii)

711. A. Tourette's syndrome

Tourette's syndrome- Multiple types of tics with vocalisation.
Treatment Haloperidol

712. b. Myoclonus

Sudden brief shock like jerkey movements involving groups of muscles with normal consciousness.

Spinal Cord

713. B. Early sacral involvement

Features of syringomyelia include all of the following, **except:**

- Dissociative sensory loss
- Sacral sparing
- Suspended sensory loss
- Wasting of small muscles of hand

714. D. Dorsal column

In dorsal column sacral fibers are placed medially.

715. C. LMN Paralysis of cranial nerve IX to XII

Bulbar paralysis refers to LMN Paralysis of cranial nerve IX to XII

716. B. UMN Paralysis of cranial nerve IX to XII

Pseudobulbar paralysis refers to: UMN Paralysis of cranial nerve IX to XII

717. B. Contralateral loss of pain

718. D. Sacral sparing

EXTRAMEDULLARY TUMOUR:

- Early corticospinal signs and paralysis
- Root pain or midine back pain
- Asymmetric weakness
- Early Sacral involvement

719. B. Absent knee and ankle jerks

CONUS MEDULLARIS SYNDROME INCLUDE

- Plantar extensor response

Normal knee jerks
Absent ankle jerks
Sacral anesthesia
Lower sacral and coccygeal segments involvement

720. A. Conus medullaris syndrome

Early loss of bladder control is seen in Conus medullaris syndrome.

721. A. Wasting

Spinal shock is characterized by

- Sensory loss
- Urinary retention
- Areflexia

722. B. C4-C5

Upper border of sternum has dermatome level C4.

723. B. Loss of vibration sense

Dorsal column is located posteriorly in spinal cord. They are supplied by posterior spinal arteries.

724. B. Brisk jaw jerk

Brisk jaw jerk is seen when lesion is above Pons.

725. A. Cog-wheel rigidity.

Features of cortiospinal tract involvement:

- Spasticity
- Plantar extensor response.
- Exaggerated deep tendon reflexes.

726. A. Bladder involvement

Bladder involvement in extramedullary compression is late as compared to intramedullary compression.

727. B. Brisk jaw jerks.

Trigeminal/Vth cranial nerve has its nucleus in pons as well has a spinal nucleus which extends down through the lower pons and medulla into spinal cord as far as C3/C4.Through which sensory fibres will pass thus carrying sensations of the face.Hence due to high cervical cord lesion till C3/ Facial sensory impairement will occur.

Jaw jerk-Afferent impulse of this reflex are carried through sensory portion of the trigeminal nerve the efferent impulse through trigeminal nerve with its reflex centre in PONS.So this jerk like any other jerk will become brisk in a UMN lesion/supranuclear lesion OR a lesion above pons,never in a lesion with the spinal cord.So normal jaw jerk happens in cases of myelopathy NEVER BRISK JAW JERK OCCURS.

Bladder is innervated from autonomic nervous system with relay via spinal cord.It is very evident

that any disease of spinal cord/myelopathy will obviously affect the bladder.

PECTORALIS REFLEX-With patients arm in midposition between abduction and adduction,the examiner places her finger as nearly as possible on the tendon of pectoralis major muscle near its insertion on the greater tuberosity of the humerus.Tapping the finger causes adduction and slight internal rotation of the arm of the shoulder. The contraction of the muscle may be felt but usually not seen in normal indivisual. **In patients with cervical spondylotic myelopathy, a hyperactive/brisk pectoralis reflex indicates spinal cord compression at C2-3 and C3-4 levels.This reflex is mediated by the medial and lateral(anterior thoracic) nerves (C5-T1).**

728. D.T9 –T10.

Damage to the spinal cord at the level of T9 to T10 involves spinal nerves that relate to the umbilical region, including the muscles of the lower abdomen. Damage to this level of the spinal cord could also affect the decending corticospinal pathways and thus account for the leg weakness.Disturbances of the bladder and bowels could also be explained by the disruption of the sympathetic pathways that supply these organs.A cervical lesion would most likely result in a quadriplegia, but certainly these regions have norelationship to the umbilical region. The region of T1 to T2 relates to the upper back and upper chest but not to the umbilical region.

729. C.Hypertrophy of abductor pollicis brevis

Atrophy of muscles can be seen because of involvement of anterior horn cells.

730. A Cervical

Fibres of corticospinal tract are arranged from medial to lateral as Cervical→Thoracic→Lumbar→Sacral.

731. A Disuse atrophy

Disuse atrophy is a feature of upper motor neuron lesion.

Denervation atrophy, Fasciculation, Plantar absent are features of LMN lesion.

732. B. T12

Dermatome of inguinal ligament is T12.

733. D. T10

Dermatome of umbilicus is- T10

734. B. Contralateral loss of pain and temperature at the level of lesion

Brown Sequard syndrome?

- Ipsilateral loss of pain and temperature at the level of lesion – Because of destruction of dorsal root.
- Contralateral loss of pain and temperature at the level of lesion- false. Pain and temperature fibers cross 2 level higher. So they are preserved.
- Ipsilateral exaggerated deep tendon reflexes below the level of lesion. Because of lesion in corticospinal tract.
- Ipsilateral atrophy of muscles at the level of lesion. Because of destruction of anterior horn cells.

735. C. Hemisection of thoracic spinal cord on right side

Hemisection of thoracic spinal cord on right side (Brown-sequard syndrome)

736. D. Hemisection of cervical spinal cord on right side C5-C8

Hemisection of cervical spinal cord on right side C5-C8 (Brown-sequard syndrome).

737. B. Syringomyelia

Painless burns, Shawl pattern of pain and temperature loss, dissociatve sensory loss suggest syringomyelia.

738. A. MRI Brain plus spinal cord

To see the extent of dilatation of central canal MRI Brain plus whole spinal cord should be done.

739. A. Compressive mylopathy at lumbar region

Compressive mylopathy at lumbar region. Radicular back pain, asymmetrical sensory and motor involvement suggest compressive myelopathy.

740. D. Syringomyelia

Causes of exaggerated jaw reflex

A. Multiple sclerosis

B. Motor neuron disease

C. Pseudobulbar palsy

741. C. Proprioception

As dorsal column crosses at the level of lower medulla.

742. D. Sacral sparing

Early sacral involvement is a feature of extramedullary tumour.

Early corticospinal signs and paralysis due to compression of corticospinal tract.

Root pain due to compression and irritation of sensory root.

Bladder involvement is late as compared to intramedullary tumour.

743. B. Conus medullaris

Retention of urine suggest bladder involvement. Damage to S2-S4 leads to loss of parasympathetic supply of bladder and leads to retention. Bilateral perianal sensory loss suggest saddle anaesthesia and lesion is from S1 to S5. It is characteristic feature of conus medullaris. Ankle reflex is lost bilaterally because S1 is lost. knee reflex is normally present because L2-L5 is normal. Plantar is extensor bilaterally because corticospinal tract is lost.

744. A. Cauda equina

severe back pain radiating to left knee and difficulty in walking→ Suggest compression of root.

patient has loss of all sensations on left lower limb while right is normal→ suggest asymmetric sensory loss and compression is from left side.

Power in left lower limb is 4/5 and in all other limbs it is 5/5→ suggest asymmetric compression of motor roots of left lower limb only.

Ankle and knee both reflexes are lost in left side while right side reflexes are normal→ Suggest lesion is involving L2 to S1 of left side only.

Plantar response is absent in left side while flexor on right→ Suggests LMN type lesion on left side while right side is normal.

745. D. Wasting with fasciculations of lower limb

Cervical cord injury is upper motor neuron lesion for lower limb muscles. Fasciculations are features of LMN lesion.

746. C. lead poisoning

It is motor neuropathy i.e. LMN lesion. All other options can cause spastic paraplegia by damaging UMN.

747. A. Beevor's sign is seen in Abdominal muscles

748. D. Baclofen

Baclofen is most common drug used in spasticity in patients with spinal cord injury.

Facial Nerve

749. D. Todd's paralysis

Facial nerve palsy is associated with

- Bell's palsy
- Ramsay Hunt syndrome
- Melkersson Rosenthal syndrome
- GBS

750. A. Recurrent facial nerve palsy plus permanent facial edema

Melkersson Rosenthal syndrome is recurrent facial nerve palsy plus permanent facial edema

751. A. Frontalis and orbicularusocculi

Frontalis and orbicularusocculimuscles are spared in upper motor neuron lesion of facial nerve.

752. D. Contralateral lower face is paralysed in LMN lesion of facial nerve

- It gives parasympathetic supply to lacrimal glands.
- frontalis and orbicularis oculi have bilateral cortical presentation.
- HIV, GBS and sarcoidosis are associated with bilateral facial nerve palsy.
- Ipsilateral side of face is paralysed in LMN lesion of facial nerve
- Contralateral lower face is paralysed in UMN lesion of facial nerve

Trigeminal Nerve

753. A. Ophthalmic

Ophthalmic branch of trigeminal nerve is rarely involved in trigeminal neuralgia.

754. B. Trigeminal nerve

Largest cranial nerve is Trigeminal nerve.

755. C. Tic douloureux

Trigeminal neuralgia is also called as tic douloureux.

756. D. Tic douloureux

Tic douloureux/Trigeminal neuralgia. Site of pain and presence of triggering factor suggestive of trigeminal neuralgia.

757. A. Carbamazepine

758. B. Trigeminal neuralgia

Multiple Sclerosis

759. A. Mycophenolate mofetil

Drugs approved for RRMS and SPMS are
(1) IFN-β-1 a (Avonex), (2) IFN-β- 1 a (Rebif) (3) IFN-β-1b (Betaseron or Extavia) (4) glatiramer acetate(Copaxone) (5) natalizumab (Tysabri) (6) fingolimod (Gilenya) (7) dimethyl fumarate (Tecfidera) (8) teriflunomide (Aubagio) (9) mitoxantrone (Novantrone) (1 0) alemtuzumab (Lemtrada).

760. A. Contralateral abductor palsy

One and half syndrome consists of

- Ipsilateral abductor palsy
- Ipsilateral adductor palsy
- Contralateral adductor palsy
- Lesion is in MLF and 6th nerve nucleus

761. B. Increased redistribution of sodium channel along the naked axon

Uthoff's symptoms in Multiple sclerosis like visual blurring during hot shower bath are due to increased redistribution of sodium channels along the naked axon

762. A. Ipsilateral Nystagmus

Features of Internuclear ophthalmoplegia are

- Contralateral Nystagmus
- Lesion is in MLF
- Ipsilateral adductor palsy
- Diplopia

763. D. Demyelination of CNS neurons

Multiple sclerosis is a demyelinating disease. The lesions may also involve some reactive gliosis and axonal degeneration. It occurs mainly in the white matter of the spinal cord and brain as well as in the optic nerve. Option (a) and (c) are incorrect because they refer to the peripheral nervous system, whereas multiple sclerosis is a disorder affecting the CNS. Loss of dopaminergic neurons is not a correct choice because many of the neurons in the CNS affected by multiple sclerosis are not dopaminergic

764. D. Internuclear ophthalmoplegia

Diplopia in multiple sclerosis is due to Internuclear ophthalmoplegia.

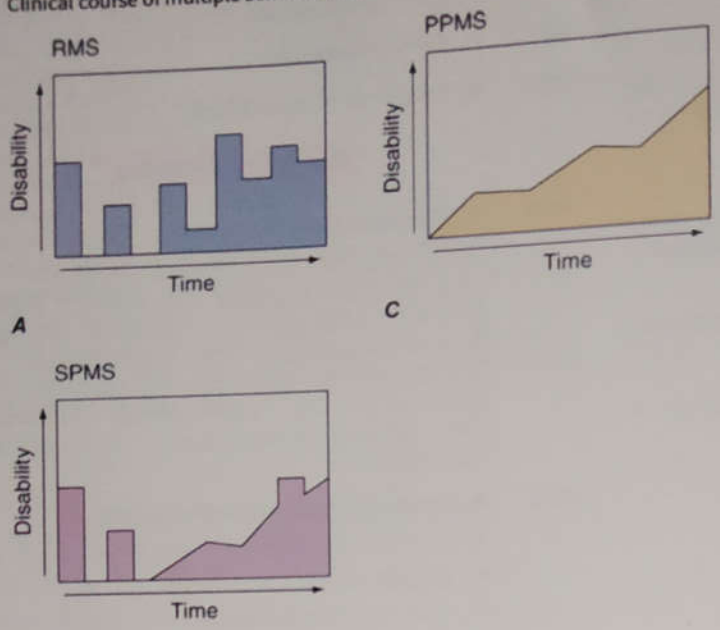
765. A. Relapsing multiple sclerosis

Most common type of multiple sclerosis isrelapsing multiple sclerosis.

766. B. Relapsing or bout onset multiple sclerosis

Relapsing or bout onset multiple sclerosis.
Reference 20th edition of Harrison.

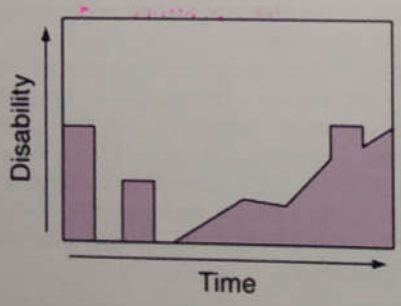
Clinical course of multiple sclerosis (MS). *A.* Relapsing MS (RMS). *B.* Secondary progressive MS (SPMS). *C.* Primary progressive MS (PPMS).



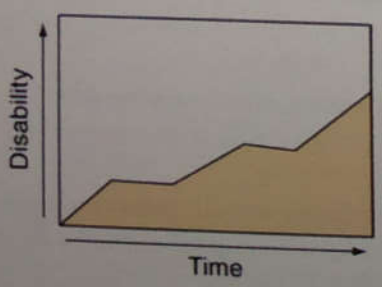
1. Relapsing or bout onset MS (RMS) accounts for 90% of MS cases and is characterized by discrete attacks of neurological dysfunction that generally evolve over days to weeks (rarely over hours). With initial attacks, there is often substantial or complete recovery over the ensuing weeks to months. However, as attacks continue recovery may be less evident. Between attacks, patients are neurologically stable.
2. Secondary progressive AfS(SPMS) always begins as RMS. At some point, however, the clinical course changes so that the patient experiences deterioration in function unassociated with acute attacks. SPMS produces a greater amount of fixed neurologic disability than RMS. For a patient with RMS, the risk of developing SPMS is -2% each year, meaning that the great majority of RMS ultimately evolves into SPMS. As such, SPMS appears to represent a late stage of the same underlying illness as RMS.
3. Primary progressive MS (PPMS) accounts for -10% of cases. These patients do not experience attacks but rather steadily decline in function from disease onset. Compared to RMS, the sex distribution is more even, the disease begins later in life (mean age -40 years), and disability develops faster (relative to the onset of the first clinical symptom). Despite these differences, PPMS appears to represent the same underlying illness as RMS.

Progressive MS and disease activity. Patients with SPMS or even PPMS will occasionally experience relapses, albeit far less often than in RMS. Progressive MS patients experiencing relapses or who are found to have acute new lesions on MRI are considered to have "active" MS. In contrast, the term "progression" is reserved to describe neurological worsening that accumulates independently from disease activity.

767. C.



768. B.



GBS and Neuropathies

769. C. Weakness of limbs

Miller Fisher syndrome

- Ataxia
- Areflexia of limbs
- Ophthalmoplegia

770. B. GQ1b

Miller Fisher syndrome (MFS) is strongly associated with GQ1b antibody.

771. C. Glucocorticoids are effective in GBS

Gullain-Barre syndrome (GBS)

- Bladder involvement occurs in severe cases
- Anti GD1a antibodies are found in patients of Acute Motor Axonal Neuropathy (AMAN) subtype of GBS
- Glucocorticoids have not been found to be effective in GBS
- Facial diparesis found in 50% of cases

772. A. Intravenous immunoglobulin

Treatment of choice for GBS is Intravenous immunoglobulin (IvIg)

773. B. Proximal muscle weakness

Myopathy involves proximal muscles. Neuropathy involves distal muscles.

774. D. All

Types of neuropathy seen in diabetes are-
A. Distal symmetric sensory neuropathy
B. Autonomic neuropathy
C. Mononeuropathy

775. A. Distal symmetric sensory

The most common form of diabetic neuropathy is- Distal symmetric sensory and motor neuropathy.

776. D all of the above

777. D. Campylobacter jejuni

Most common antecedent infection associated with GBS-Campylobacter jejuni

MND

778. B. Primary lateral sclerosis

MND involving only UMN are
- Primary lateral sclerosis
- Pseudobulbar palsy
- Familial spastic paraplegia

779. D. Familial spastic paraplegia

Familial spastic paraplegia involves only UMN

780. D. Bladder involvement

Never involved structures in MND
- Ocular muscles
- Cognition
- Sensory system
- Bladder

Dementia (In a subset of cases, ALS arises concurrently with frontotemporal dementia)

781. B. Nuclei of cranial nerves

In patients with MND Sensory system,ocular muscles & cognition is normal . While cranial nerve nuclei of lower cranial nerves is involved.

782. A. Anterior horn cells

Anterior horn cells represent the site of lesion in **motor neuron disease.**

783. B. Death of posterior horn cell neurons

Amyotrophic lateral sclerosis
- More common in male than female
- Death of anterior horn cell neurons
- Death of neurons in motor cortex in cerebral hemisphere
- Bladder is not involved

Neuromuscular Junction Disorders

784. D. Thymectomy should be done

It is case of Lambert Eaton Myaesthenic Syndrome
- Antibodies are produced against P/Q type calcium channels at motor nerve terminal.
- It is associated with small cell cancer of lung.
- Low frequency repetitive nerve stimulation produces a decrementing response
- 3,4-DAP facilitates release of ACh from motor nerve terminals and produces clinically significant improvement of strength and autonomic symptoms in most LES patients.
- Pyridostigmine is effective
- Treatment consists of Plasmapheresis and immunosuppression.

785. A. Thymectomy is indicated in the absence of thymoma

Thymectomy is indicated in all generalised myasthenia except those with MuSKantibody,ocular MG, avoidable in <15,>55 years age group.
They have poorer response to thymectomy. Early treatment with immunosupressants is helpful not only restricted to myaesthenic crisis.

786. C. Intravenous immunoglobulin

787. B. Absent deep tendon reflexes

DTR are normally present in myasthenia gravis.

788. C. SFEMG (Single fiber electromyography)

SFEMG (Single fiber electromyography) is gold standard test for myasthenia gravis.

789. D. Incremental response in low frequency repetitive nerve stimulation test.

Incremental response in **HIGH** frequency repetitive nerve stimulation test.
Decremental response in low frequency repetitive nerve stimulation test.

790. B. Thymus gland

Myasthenia gravis is caused by dysfunction ofThymus gland

Myopathies

791. B. Dermatomyositis

Proximal muscle weakness with skin manifestations in the form of Gottron's papule and heliotrope rash suggest Dermatomyositis.

792. A. Mycophenolate

Empirical approach for dermatomyositis and polymyositis
STEPS –
1. High dose prednisone
2. Mycophenolate or Azathioprine or Methotrexate
3. Intravenous immunoglobulin
4. Rituximab or cyclosporine or cyclophosphamide or tacrolimus

793. C. Muscle biopsy shows perifascicular inflammation

IBM features are
- Males are more commonly affected than females

- Phyrangeal muscles are affected
- Muscle biopsy shows vacuolated fibers
- IBM is resistant to immunosuppressive therapies

794. B. Sarcolemmal proteins

Duehenne muscular dystrophy is a disease of Sarcolemmal proteins.

795. B. IX

Function of IX cranial nerve is sensory i.e Taste over posterior 1/3 rd of tongue and sensation over pharynx.

MG is a disease of Neuromuscular junction affecting function of motor nerves sparing the sensory system.

796. D. Lumbar puncture.

MRI mediastenum is useful for detecting thymoma. In 3-7% pts. with MG hyperthyroidism is seen. Tuberculin test is useful for detecting latent TB in view of use of steroids to be used.L.P is not that useful investigation prior to treatment.

Alzheimere's Dementia

797. D. APO E2 gene

Risk factors for Alzheimer's Disease

- Old age
- Positive family history
- Female gender
- APO E4 gene
- Low education level

798. C. Corticobasal Degeneration

"Alien hand" phenomenon is a feature of Corticobasal Degeneration

799. C. Amyloid deposits and neurofibrillary tangles

800. C. Trisomy 21

Chromosomal anomaly associated with Alzheimer's dementia is Triosomy 21.

Miscellaneous

801. C. Ataxia, urinary incontinence, dementia

802. D. Mental retardation

Mental retardationis least common in friedreich ataxia.

803. D. Spinal cord

Spinal cord and optic nerve are spared in PMLE

804. C. Soprinosine

Isoprinosine + interferon alpha prolongs survival in SSPE. Mirtazapine is used in PMLE.

805. C. Isoprinosine prolongs the survival

Progressive Multifocal Leukoencephalopathy

- Occurs in Natalizumab treated Multiple sclerosis patients
- It is due to JC virus infection
- Mirtazapine prolongs the survival
- Homonymous hemianopia is most common clinical feature

806. A. Fever

Subacute Sclerosing Panencephalitis

- Poor school performance
- Focal or generalized or myoclonic seizures
- Visual disturbance

807. B. Isoprinosine

808. A. Neurocysticercosis

Most common parasitic disease of the CNS worldwide is Neurocysticercosis.

809. A. Friedreich's ataxia

- Young patient
- DTR absent
- Ataxia
- Plantar extensor
- Association with diabetes

810. B. Wilson's disease

Tremors associated with kayerfischer ring suggests wilson's disease.

811. D. Frequency is 4 to 6 HZ

Essential Tremors

- It is commonest movement disorder
- Manifest as postural or action tremor
- Treatment is propranolol
- Frequency is 6 to 10 HZ

812. D. Cycloplegia

Horner's syndrorne is characterized by

- Miosis
- Enophthalmos
- Ptosis

813. D. Extensor plantar with brisk lower limb reflexes

Friadreich ataxia

Progressive ataxia is the most common presentation.

Cardiomyopathy is common association.

Diabetes mellitus may be associated.

Extensor plantar due to corticospinal tract involvement.

Loss of lower limb reflexes due to peripheral neuropathy.

814. B. Friedrich ataxia

815. A. Dorsal root ganglion

DRG of spinal cord is involved first in spinal cord

816. D. Myopathy

Vitamin B12 Deficiency can give rise to
A. Myelopathy
B. Optic atrophy
C. Peripheral neuropathy

817. D. Vitamin B12 deficiency

Vitamin B12 deficiency- Megaloblastic anaemia
Posterior column dysfunction and plantar extensor suggest- SACD

818. B. Deep tendon reflexes are brisk

Tabes dorsalis

- Seen in neurosyphilis
- Deep tendon reflexes are lost
- Loss of vibration sense
- Bladder involvement

819. A. Cogwheel rigidity

Wernicke's encephalopathy features
B. Alteration in mental function (Global confusion)
C. Ophthalmoplegia
D. Ataxia

820. D. Hippocampus

Wernicke's encephalopathy affects

- Mamillary body
- Thalamus
- Periventricular grey matter

821. Most common hypoproliferative anaemia is?

a. Early iron deficiency anaemia
b. Anaemia of chronic inflammation
c. Anaemia of renal disease
d. Anaemia from marrow damage

822. Which of the following can predispose to iron deficiency?

a. Pregnancy
b. Crohn's disease
c. Bariatric surgery
d. All the above

823. Which of the following is not expected in case of iron deficiency anaemia?

a. Reduced free erythrocyte protoporphyrin
b. Reduced serum iron
c. Reduced serum ferritin
d. Increased TIBC

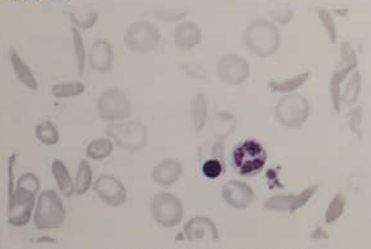
824. Which of the following iron preparation is associated with highest risk of anaphylaxis?

a. Iron dextran
b. Iron sucrose
c. Iron carboxymaltose
d. Ferymoxytol

825. The term "painful crisis" is most closely related to?

a. Iron deficiency anaemia
b. Sickle cell anaemia
c. Vitamin B12 deficiency
d. Paroxysmal Nocturnal Hemoglobinuria

826. The peripheral smear shown below is consistent with:



a. Iron deficiency anaemia
b. Sickle cell anaemia
c. Hereditary spherocytosis
d. Acute Myeloid Leukemia

827. Fish tapeworm infestation is associated with?

a. Iron deficiency anaemia
b. Megaloblastic anaemia
c. Normocytic normochromic anaemia
d. Polycythemia

828. Not a feature of haemolytic anaemia?

a. Low LDH levels
b. Increased reticulocyte count
c. Splenomegaly
d. Increased bilirubin

829. Which of the following haemolytic anemias occurs due to acquired intracorpuscular defect?

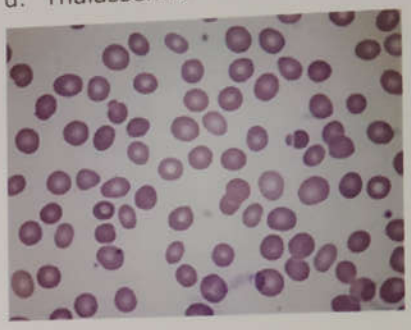
a. Hemoglobinopathies
b. Paroxysmal Nocturnal Hemoglobinuria
c. Enzymopathies
d. Membrane-cytoskeletal defects

830. Cryoprecipitate contains:

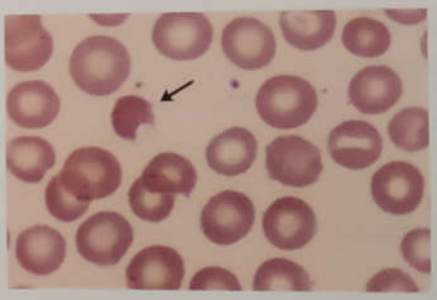
a. Fibrinogen
b. Factor VIII
c. Von Willebrand Factor
d. All the above

831. Below is the peripheral smear finding of a patient with a particular membrane cytoskeletal abnormality. What is the diagnosis?

a. Hereditary spherocytosis
b. Paroxysmal Nocturnal Hemoglobinuria
c. Sickle cell anaemia
d. Thalassemia



832. What is the arrow pointing to in the peripheral smear of this patient admitted for evaluation of anaemia?



a. Auer rod
b. Bite cell
c. Faggot cell
d. Normoblast

833. Intravascular hemolysis can occur in?

a. March hemoglobinuria
b. Paroxysmal Nocturnal Hemoglobinuria
c. Paroxysmal Cold Hemoglobinuria
d. All

834. Warm autoimmune haemolytic anaemia can occur secondary to?

a. SLE
b. CLL
c. Inflammatory bowel disease
d. All the above

835. Which monoclonal antibody is used in the treatment of paroxysmal nocturnal hemoglobinuria?

a. Omalizumab
b. Eculizumab
c. Tofacitinib
d. Bevacizumab

821. a	822. d	823. a	824. a	825. b	826. b	827. b	828. a	829. b	830. d	831. a
832. b	833. d	834. d	835. b							

836. Pancytopenia with cellular marrow can occur with?

a. MDS
b. PNH
c. Aleukemia leukemia
d. All the above

837. Not an inherited cause of aplastic anaemia?

a. Shwachman-Diamond syndrome
b. Dyskeratosis congenita
c. Fanconi anemia
d. Felty's syndrome

838. Which of the following viruses is not associated with aplastic anaemia?

a. EBV
b. Adenovirus
c. HIV
d. Parvovirus B 19

839. .Not a feature of aplastic anaemia?

a. Bleeding
b. Splenomegaly
c. Lymphadenopathy
d. Both b and c

840. Which of the following can be used in the treatment of aplastic anaemia?

a. Haematopoietic stem cell transplantation
b. Antithymocyte globulin
c. Eltrombopag
d. All the above

841. Which of the following is associated with pure red cell aplasia (PRCA)?

a. Malignancies
b. Procainamide
c. SLE
d. All the above

842. Therapy related MDS can occur secondary to?

a. Busulfan
b. Nitrosurea
c. Procarbazine
d. All the above

843. Which drug is effective in treating MDS associated with 5q deletion?

a. Azacitidine
b. Decitabine
c. Lenalidomide
d. Cyclophosphamide

844. Erythrocytosis is associated with?

a. Hepatopulmonary syndrome
b. Renal artery stenosis
c. 2, 3 BPG mutation
d. All the above

845. JAK2 gene is located on?

a. 7p
b. 9p
c. 7q
d. 9q

846. Which of the following can be a feature of polycythemia vera (PV)?

a. Increased blood viscosity
b. Peptic ulcer
c. Pruritus
d. All the above

847. Which JAK2 inhibitor can be used in the treatment of polycythemia vera?

a. Imatinib
b. Dasatinib
c. Nilotinib
d. Ruxolitinib

848. Which of the following conditions can be associated with myelofibrosis?

a. Hyperparathyroidism
b. Hairy cell leukemia
c. Tuberculosis
d. All the above

849. Which of the gene mutations is associated with essential thrombocytosis?

a. JAK2
b. MPL
c. CALR
d. All the above

850. Thrombocytosis may be a feature of?

a. Iron deficiency anaemia
b. Polycythemia vera
c. Inflammatory bowel disease
d. All the above

851. Most common subtype of Non Hodgkin's lymphoma?

a. Diffuse large B cell lymphoma
b. Follicular lymphoma
c. MALT lymphoma
d. Burkitt's lymphoma

852. Epstein Barr virus is most commonly associated with?

a. Primary effusion lymphoma
b. Adult T-cell leukemia/lymphoma
c. Lymphoplasmacytic lymphoma
d. Burkitt's lymphoma

853. Which of the following conditions is associated with the development of lymphomas?

a. Sjogren's syndrome
b. Wiskott-Aldrich syndrome
c. Klinefelter's syndrome
d. All the above

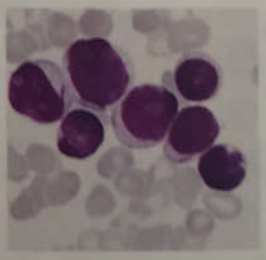
854. Which of the following agents is used in the treatment of Diffuse large B cell lymphoma?

a. Cyclophosphamide
b. Rituximab
c. Vincristine
d. All the above

855. Primary Effusion lymphoma is caused by?

a. Hepatitis C
b. HHV-8
c. Hepatitis B
d. HTLV-1

856. The peripheral smear is most likely that of a patient with?



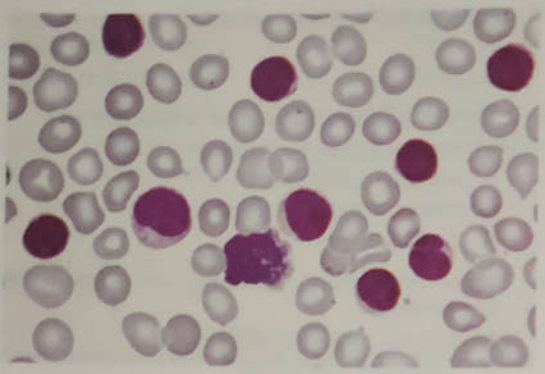
a. AML
b. ALL
c. CLL
d. CML

836. d	837. d	838. b	839. d	840. d	841. d	842. d	843. c	844. d	845. b	846.
847. d	848. d	849. d	850. d	851.a	852. d	853. d	854. d	855. b	856. a	

857. Name an oral drug that induces the differentiation of leukemic cells bearing the t(15;17) in AML?

a. Cytarabine
b. Daunorubicin
c. ATRA
d. All the above

858. The peripheral smear is likely that of a patient with?



a. AML
b. ALL
c. CLL
d. CML

859. Which of the following is an indication for starting treatment in CLL?

a. Autoimmune anaemia
b. Massive splenomegaly
c. Massive lymphadenopathy
d. All the above

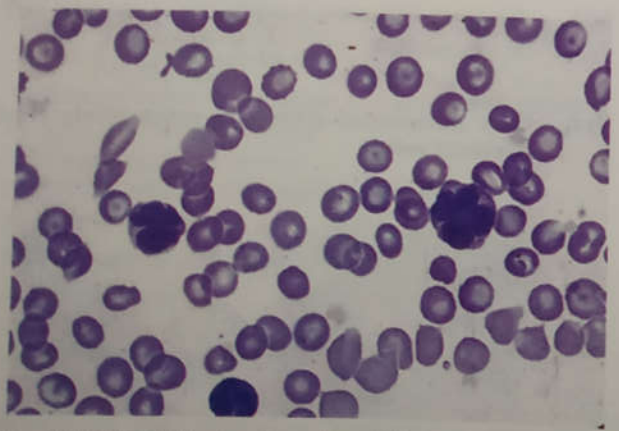
860. Which of the following monoclonal antibodies can be used in the treatment of CLL?

a. Rituximab
b. Ofatumumab
c. Obinutuzumab
d. All the above

861. The clinical presentation of endemic form of Burkitt's lymphoma is as?

a. Facial bone tumor
b. Massive ascites
c. Acute leukemia
d. None of the above

862. The peripheral smear shown below is most likely that of a patient with?



a. Adult T cell leukemia
b. CML
c. CLL
d. MDS

863. Lymphadenoapathy in classical Hodgkin's lymphoma is most commonly at?

a. Cervical region
b. Mediastinal region
c. Subdiaphragmatic region
d. None

864. As per definition, in hypereosinophilic syndrome, absolute eosinophil count should be more than ...../mm3

a. 100
b. 500
c. 1000
d. 1500

865. Most common symptom in multiple myeloma is?

a. Bone pain
b. Headache
c. Bleeding
d. Oliguria

866. False statement regarding multiple myeloma?

a. Normocytic normochromic anaemia is common
b. Increased predisposition to infections
c. Hyperviscosity can cause visual symptoms
d. Kidneys are not involved

867. Most commonly, the serum M component in myeloma is?

a. IgG
b. IgA
c. IgD
d. None

868. Serum β_2-microglobulin is the single most powerful predictor of survival and can substitute for staging in which disease?

a. Hodgkin's lymphoma
b. Non Hodgkin's lymphoma
c. Hairy cell leukemia
d. Multiple myeloma

869. A patient with serum monoclonal protein (non-IgM type) <30 g/L, clonal bone marrow plasma cells <10% and absence of myeloma defining events or amyloidosis is having?

a. MGUS
b. Smoldering myeloma
c. Symptomatic multiple myeloma
d. None

870. Not a feature of POEMS syndrome?

a. Polyneuropathy
b. Oesophageal dysmotility
c. Endocrinopathy
d. Skin changes

871. Not a drug used in treatment algorithm of multiple myeloma?

a. Edaravone
b. Cyclophosphamide
c. Dexamethasone
d. Bortezomib

872. Which of the following is a histone deacetylase inhibitor used in the treatment of multiple myeloma?

a. Bortezomib
b. Panobinostat
c. Daratumumab
d. Lenalidomide

857. c	858. c	859. d	860. d	861. a	862. a	863. a	864. d	865. a	866. d	867. a
868. d	869. a	870. b	871. a	872. b						

873. Waldenstrom's macroglobulinemia (WM) is a malignancy of lymphoplasmacytoid cells that secrete?

a. IgM b. IgG
c. IgE d. IgD

874. Most common gene mutation in WM patients?

a. MYD88 b. CXCR4
c. ARID1A d. CD79B

875. Most common heavy chain disease is?

a. Franklin's disease
b. Seligmann's disease
c. MU heavy chain disease
d. None

876. Palatal edema is a distinct feature of which heavy chain disease?

a. Franklin's disease
b. Seligmann's disease
c. MU heavy chain disease
d. None

877. Richter's transformation is a devastating complication of?

a. AML b. ALL
c. CML d. CLL

878. Rai and Binet staging is used for?

a. CML b. CLL
c. AML d. ALL

879. Among the following, most common physical finding in CML patients?

a. Splenomegaly
b. Hepatomegaly
c. Lymphadenopathy
d. Frontal bossing of skull

880. Only available BCR-ABL1 TKI active against T315I is?

a. Imatinib b. Dasatinib
c. Ponatinib d. Nilotinib

881. Maximum risk of Heparin Induced Thrombocytopenia is ..... days following heparin exposure

a. 1-4 b. 5-14
c. 15-30 d. 40-60

882. Most common subtype of Von Willebrand disease?

a. Type 1 b. Type 2 A
c. Type 2 B d. Type 3

883. Pattern of inheritance of Hemophilia:

a. Autosomal recessive b. Autosomal dominant
c. X-linked recessive d. X-linked dominant

884. Which of the following can lead onto venous thrombosis?

a. Pregnancy
b. Myeloproliferative disorders
c. Antiphospholipid antibody syndrome
d. All the above

885. The bioavailability of LMWH after subcutaneous administration is :

a. 10% b. 30%
c. 50% d. 90%

886. Antibodies to ..... blood group antigen causes Paroxysmal Cold Hemoglobinuria?

a. Kell b. P
c. MNS d. ABO

887. After ABO and Rh, the next most immunogenic blood group system is .....

a. Kell b. Duffy
c. MNS d. Kidd

888. Most frequent reaction associated with the transfusion of cellular blood components is?

a. Allergic reactions
b. Anaphylactic reactions
c. Febrile non haemolytic transfusion reactions
d. Graft versus host disease

889. Platelets are stored in plasma or in additive solution up to ..... days at 20–24°C?

a. 2-4 b. 5-7
c. 10-12 d. 15-18

890. FFP contains?

a. Fibrinogen b. Antithrombin
c. Albumin d. All the above

891. Cryoprecipitate contains..... units of factor VIII

a. 10 b. 25
c. 50 d. 80

892. Post-transfusion purpura occurs ..... days after platelet transfusion?

a. 1-2 b. 3-5
c. 7-10 d. 15-20

893. Which of the following electrolyte abnormality is related to blood transfusion?

a. Hyperkalemia b. Hypokalemia
c. Hypocalcemia d. Both a and c

894. Which of the following increases the risk of developing Transfusion related Acute Lung Injury?

a. Smoking
b. Chornic alcoholism
c. Liver surgery
d. All

895. Erythrocytosis can occur as paraneoplastic syndrome in :

a. Renal cancers
b. Hepatocellular carcinoma
c. Cerebellar hemangioblastomas
d. All the above

873. a	874. a	875. b	876. a	877. d	878. b	879. a	880. c	881. b	882. a	883. c
884. d	885. d	886. b	897. a	888. c	890. d	891. d	892. c	893. d	894. d	895. d

821. A. Early iron deficiency anaemia

Anaemias associated with normocytic and normochromic red cells and an inappropriately low reticulocyte response (reticulocyte index <2-2.5) are hypoproliferative anemias. Hypoproliferative anaemias include :

1. Early iron deficiency
2. Acute and chronic inflammation
3. Renal disease
4. Hypometabolic states (such as protein malnutrition)
5. Anaemias from marrow damage

822. D. All the above

Causes of Iron Deficiency

Increased Demand for Iron
Rapid growth in infancy or adolescence
Pregnancy
Erythropoietin therapy
Increased Iron Loss
Chronic blood loss
Menses
Acute blood loss
Blood donation
Phlebotomy as treatment for polycythemia vera
Decreased Iron Intake or Absorption
Inadequatediet
Malabsorption from disease (sprue, Crohn's disease)
Malabsorption from surgery (gastrectomy and some forms of bariatric surgery)
Acute or chronic inflammation

823. A. Reduced free erythrocyte protoporphyrin

Protoporphyrin is an intermediate in the pathway to heme synthesis. Under conditions in which heme synthesis is impaired, protoporphyrin accumulates within the red cell. This reflects an inadequate iron supply to erythroid precursors to support hemoglobin synthesis. Normal values are <30 µg/dL of red cells. In iron deficiency, values >100 µg/dL are seen. The most common causes of increased red cell protoporphyrin levels are absolute or relative iron deficiency and lead poisoning.

DIAGNOSIS OF MICROCYTIC ANAEMIA

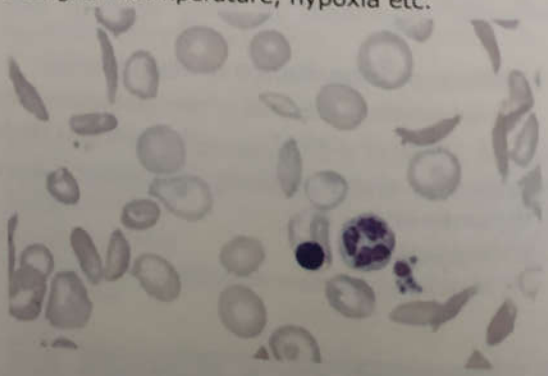
Tests	Iron Deficiency	Inflammation	Thalassemia	Sideroblastic Anemia
Smear	Micro/hypo	Normal micro/hypo	Micro/hypo with targeting	Variable
Serum iron (µg/dL)	<30	<50	Normal to high	Normal to high
TIBC (µg/dL)	>360	<300	Normal	Normal
Percent saturation	<10	10-20	30-BO	30-B0
Ferritin (µg/L)	<15	30-200	50-3 00	50-300
Hemoglobin pattern on electrophoresis	Normal	Normal	Abnormal with β thalassemia; can be normal with a thalassemia	Normal

824. A. Iron dextran

The safety of parenteral iron has been a concern largely driven by the high adverse reaction rate to high-molecular-weight iron dextran. The newer iron complexes that are available, such as ferumoxytol, sodium ferric gluconate, iron sucrose and ferric carboxymaltose have much lower rates of adverse effects.

825. B. Sickle cell anaemia

In sickle cell anaemia, intermittent episodes of vasoocclusion in connective and musculoskeletal structures produces ischemia manifested by acute pain and tenderness, fever, tachycardia, and anxiety. These recurrent episodes are called painful crises. Their frequency and severity vary greatly. Pain can develop almost anywhere in the body and may last from a few hours to 2 weeks. Repeated crises requiring hospitalization (>3 episodes per year) correlate with reduced survival in adult life, suggesting that these episodes are associated with accumulation of chronic end-organ damage. Provocative factors include infection, fever, excessive exercise, anxiety, abrupt changes in temperature, hypoxia etc.



826. B. Sickle cell anaemia

This is the peripheral smear of sickle cell anaemia. The elongated and crescent-shaped red blood cells seen on this smear represent circulating irreversibly sickled cells. Target cells and a nucleated red blood cell are also seen.

827. B. Megaloblastic anaemia

The fish tapeworm (Diphyllobothrium latum) lives in the small intestine of humans and accumulates cobalamin from food, rendering the cobalamin unavailable for absorption. Individuals acquire the worm by eating raw or partly cooked fish. Megaloblastic anemia or cobalamin neuropathy occurs in those with a heavy infestation.

828. A. Low LDH levels

Features Common to Host Patients with a Hemolytic Disorder

General examination	Jaundice, pallor
Other physical findings	Spleen maybe enlarged; bossing of skull in severe congenital cases
Hemoglobin !evei	From normal to severely reduced
MCV, MCH	Usually increased
Reticulocytes	Usually increased
Bilirubin	Afmost always increased (mostly unconjugated)
LDH	Increased (up to 10x normal with intravascular hemolysis)
Haptoglobin	Reduced to absent if hemolysis is at least in part intravascular)

829. B. Paroxysmal Nocturnal Hemoglobinuria

	Intracorpuscular defects	Extracorpuscular factors
Inherited	Hemoglobinopathies Enzymopathies Membrane-cytoskeletal defects	Familial (atypical) HUS
Acquired	Paroxysmal Nocturnal Hemoglobinuria	Mechanical destruction (microangiopathic) Toxic agents Drugs Infectious

830. D. All the above

Cryoprecipitate is a source of fibrinogen, factor VIII, and von Willebrand factor. It is ideal for supplying fibrinogen to the volume-sensitive patient. Cryoprecipitate may also supply vWF to patients with dysfunctional (type II) or absent (type III) von Willebrand disease.

831. A. Hereditary spherocytosis

Hereditary spherocytosis most commonly is due to ankyrin gene mutation

832. B. Bite cell

Bite cell is an abnormally shaped RBC with one or more semicircular portions removed from the cell margin. It's a feature of G6PD deficiency.

833. D

Diseases and Clinical Situations in Which Hemolysis is Largely Intravascular

	Onset/Time Course	Main Mechanism	Appropriate Diagnostic Procedure	Comments
Mismatched blood transfusion	Abrupt	Nearly always ABO incompatibility	Repeat cross-match	
Paroxysmal nocturnal hemoglobinuria (PNH)	Chronic with acute exacerbations	Complement (C)-mediated destruction of CD59(–) red cells	Flow cytometry to display a CD59(–) red cell population	Exacerbations due toC activation through any pathway
Paroxysmal cold hemoglobinuria (PCH)	Acute	Immune lysis of normal red cells	Test for Donath-Landsteiner antibody	Often triggered by viral infection
Septicemia	Very acute	Exotoxins produced by Clostridium perfringens	Blood cultures	Other organ isms may be responsible
Microangiopathic	Acute or chronic	Red celt fragmentation	Red cell morphology on blood smear	Different causes ranging from endothelial damage to hemangioma to leaky prosthetic heart valve
March hemoglobinuria	Abrupt	Mechanical destruction	Targeted history taking	
Favism	Acute	Destruction of older fraction of G6PD-deficient red cells	G6 PD assay	Triggered by ingestion of large dish of fava beansa

834. D All the above

Classificatian of Acquired Immune Hemotytic Anemias

Clinical Setting	Type of Antibody	
	Cold, Mostly IgM, Optimal Temperature 4°C-30°C	Warn, Mostly IgG, Optimal Tempe rature 37°C; or Mixed
Primary	CAD	AIHA (idiopathic)
Secondary to viral infection	EBV CMV Other	HIV Viral vaccines

Secondary to other infection	Mycoplasma infection: paroxysmal cold hemoglobinuria	
Secondary to associated with otherdisease	CAD in: Waldenstrom's disease Lymphoma	AIHA in: SLE CLL Other malignancy Chronic inflammatory disorders (e.g., IBD) After allogeneic HSCT Alter immune check-point modulating drugs
Secondary to drugs: drug-induced immune hemolytic anemia	Small m tnority (e.g., with lenalidomide]	Majority: currently most common culpritdwgsare cefotetan, ceftriaxone, piperacillin

835. B. Eculizumab

A major advance has been the introduction in 2007 of a humanized monoclonal antibody, eculizumab, which binds to the complement component C5 near the site that, when cleaved, will trigger the distal part of the complement cascade leading to formation of the MAC. With C5 blocked, the patient is relieved of intravascular hemolysis and of its attendant consequences, including hemoglobinuria. In the majority of those patients who needed regular blood transfusion, the transfusion requirement is either abolished or significantly reduced. For many PNH patients, eculizumab has meant a real improvement in the quality of life, as well as a decrease in complications, particularly thrombosis.

836. D. All the above

Pancytopenia with Cellular Bone Marrow

Primary bone marrow diseases	Secondary to systemic diseases
Myeiodysplastic syndromes	Systemic lupus erythematosus
Paroxysmal nocturnal hemoglobinuria (PNH)	Hypersplenism B12, folate deficiency Copper deficiency
Myelofibrosis	Alcohol
Aleukemic leukemia	HIV infection
Myelophthisis	Brucellosis
Bone marrow lymphoma	Sarcoidosis
Hairy cell leukemia	Tuberculosis
	Leishmaniasis Sepsis

837. D. Felty's syndrome

Felty's syndrome is the triad of neutropenia, splenomegaly and nodular rheumatoid arthritis.

- Fanconi anemia, an autosomal recessive disorder, manifests as congenital developmental anomalies, progressive pancytopenia, and an increased risk of malignancy.
- Dyskeratosis congenita is characterized by the triad of mucous membrane leukoplasia, dystrophic nails, reticular hyperpigmentation, and with the development of aplastic anemia in childhood
- In Shwachman-Diamond syndrome, presentation is early in life with neutropenia with pancreatic insufficiency and malabsorption. Subsequently they develop pancytopenia

838. B. Adenovirus

The viruses associated with aplastic anaemia are :

- EBV
- Hepatitis (non-A, non-B, non-C)
- HIV
- Parvovirus B 19

839. D Both b and c

Bleeding is the most common early symptom; a complaint of days to weeks of easy bruising, oozing from the gums, nose bleeds, heavy menstrual flow, and sometimes petechiae will have been noticed Lymphadenopathy and splenomegaly are highly atypical of aplastic anemia.

840. D. All the above

- Haematopoietic stem cell transplantation is the best therapy for the younger patient with a fully histocompatible sibling donor
- The standard regimen of antithymocyte globulin (ATG) in combination with cyclosporine induces hematologic recovery (independence from transfusion and a leukocyte count adequate to prevent infection) in 60–70% of patients.
- Eltrombopag, a thrombopoietin analogue is approved for use in patients with refractory aplastic anemia.

841. D. All the above

PRCA is characterized by anemia, reticulocytopenia, and absent or rare erythroid precursor cells in the bone marrow

Associations of PRCA

- Malignancies like thymoma, lymphoid malignancies and also as paraneoplastic manifestation to solid tumors

- Connective tissue diseases like SLE, Rheumatoid arthritis
- Drugs especially phenytoin, azathioprine, chloramphenicol, procainamide, isoniazid
- Pregnancy
- Viruses like Persistent B19 parvovirus, hepatitis, adult T cell leukemia virus, Epstein-Barr virus

842. D. All the above

Secondary, therapy-related MDS occurs as a late toxicity of cancer treatment, radiation and the radiomimetic alkylating agents such as busulfan, nitrosourea, or procarbazine (with a latent period of 5–7 years), or the DNA topoisomerase inhibitors (2-year latency).

843. C. Lenalidomide

Lenalidomide, a thalidomide derivative with a more favorable toxicity profile, is particularly effective in reversing anemia in MDS patients with 5q– syndrome; not only do a high proportion of these patients become transfusion independent with normal or near-normal hemoglobin levels, but their cytogenetics also become normal. Lenalidomide is administered orally. Most patients will improve within 3 months of initiating therapy. Toxicities include myelosuppression (worsening thrombocytopenia and neutropenia, necessitating blood count monitoring) and an increased risk of deep vein thrombosis and pulmonary embolism.

844. D. All the above

Given below is the table from Harrison on the causes of absolute erythrocytosis

Absolute Erythrocytosis	
Hypoxia	**Tumors**
Carbon monoxide intoxication	Hypernephroma
High-oxygen-affinity hemoglobins	Hepatoma
High altitude	Cerebellar hemangiobla stoma
Pulmonary disease	Uterine myoma
Right-to-left cardiac or vascular shunts	Adrenal tumors
Sleep apnea syndrome	Meningioma
Hepatopulmonary syndrome	Pheochromocytoma
Renal Disease	**Drugs**
Renal artery stenosis	Androgens
Focal sclerosing ormembranous glomerulonephritis	Recombinant erythropoietin
Postrenal transplantation	**Familial (with normal hemoglobin function)**
Renal cysts	Erythropoietin receptor mutations
Bartter's syndrome	VHL mutations (Chuvash polycythemia)
	2,3-BPG mutation
	PHD2 and HIF2α mutations
	Polycythemia vera

845. B. 9p

More than 95% of PV patients express JAK-2 mutation. JAK2 gene is located on the short arm of chromosome 9, and loss of heterozygosity on chromosome 9p involving the segment containing the JAK2 locus due to mitotic recombination (uniparental disomy) is the most common cytogenetic abnormality in Polycythemia vera.

846. ?

Many of the clinical complications of PV relate directly to the increase in blood viscosity associated with red cell mass elevation and indirectly to the increased turnover of red cells, leukocytes, and platelets with the attendant increase in uric acid and inflammatory cytokine production. The latter appears to be responsible for constitutional symptoms. Peptic ulcer disease can also be due to Helicobacter pylori infection, the incidence of which is increased in PV, while the pruritus associated with this disorder may be a consequence of mast cell activation by JAK2 V617F

847. D. Ruxolitinib

With the introduction of the nonspecific JAK2 inhibitor ruxolitinib, it has been possible in the majority of patients with PV complicated by myelofibrosis and myeloid metaplasia to reduce spleen size while at the same time alleviating constitutional symptoms and pruritus due to cytokine release and reducing the phlebotomy requirement.

848. D. All the above

See this table from Harrison, on the list of disorders causing myelofibrosis

Malignant	Non malignant
Acute leukemia (lymphocytic, myelogenous, megakaryocyte)	HIV infection
Chronic myeloid leukemia	Hyperparathyroidism
Hairy cell leukemia	Renal osteodystrophy
Hodgkin's disease	Systemic lupus erythematosus
Primary myelofibrosis	Tuberculosis
Lymphoma	Vitamin D deficiency
Multiple myeloma	Thorium dioxide exposure
Myelodysplasia	Gray platelet syndrome
Metastatic carcinoma	
Polycythemia vera	
Systemic mastocytosis	

849. D. All the above

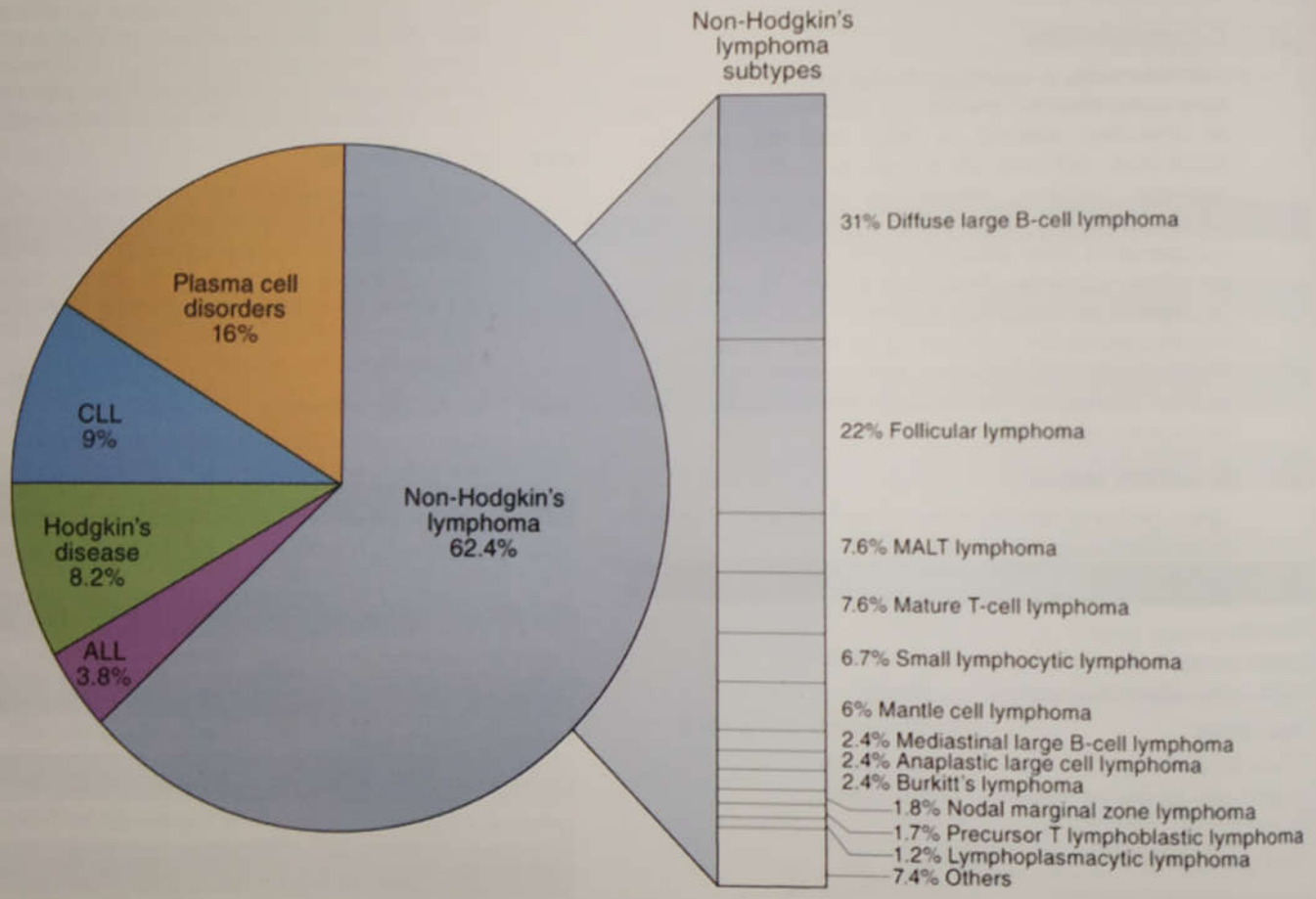
ET (other designations include essential thrombocythemia, idiopathic thrombocytosis, primary thrombocytosis, and hemorrhagic thrombocythemia) is a clonal hematopoietic stem cell disorder associated with mutations in JAK2 (V617F), MPL, and CALR and manifested clinically by overproduction of platelets without a definable cause. About 55% of ET patients express the JAK2 V617F mutation.

850. D. All the above

See this table from Harrison on the causes of thrombocytosis

Tissue inflammation: collagen vascular disease, inflammatory bowel disease	Hemorrhage
Malignancy	Iron-deficiency anemia
Infection	Surgery
Myeloproliferative disorders: polycythemia vera, primary myelofibrosis, essential thrombocytosis, chronic myelogenous leukemia	Rebound; Correction of vitamin B_{12} or folate deficiency, post-ethanol abuse
Myelodysplastic disorders: 5q-syndrome, idiopathic refractory sideroblastic anemia	Hemolysis
Postsplenectomyor hyposplenism	Familial; Thrombopoietin overproduction, JAK2or MPL mutations

851. A. Diffuse large B cell lymphoma



852. D. Burkitt's lymphoma

Infectious Agent	Lymphoid Malignancy
Epstein-Barr virus	Burkitt's lymphoma
	Post-organ transplant lymphoma
	Primary CNS diffuse large B-cell lymphoma
	Hodgkin's lymphoma
	Extranodal NK/T-cell lymphoma, nasal type
HTLV-1	Adult T-cell leukemia/lymphoma
HIV	Diffuse large B-cell lymphoma
	Burkitt's lymphoma
Hepatitis C virus	Lymphoplasmacytic lymphoma
Heiicobacte r pylori	Gastric MALT lymphoma
Human herpesvirus8	Primary effusion lymphoma
	Multicentric Castleman's disease

853. D. All the above

Diseases or Exposures associated with Increased Risk of Development of Malignant Lymphoma are given below

Inherited immunodeficiency disease	Autoimmune disease
Klinefelter's syndrome	Sjogren's syndrome
Chediak-Higashi syndrome	Celiac sprue

Ataxia-telangiectasia syndrome	Rheumatoid arthritis and systemic lupus erythematosus
Wiskott-Aldrich syndrome	Chemical or drug exposures
Common variable immunodeficiency disease	Phenytoin
Acquired immunodeficiency diseases	Dioxin, phenoxy herbicides
Iatrogenic immunosuppression	Radiation
HIV-1 infection	Prior chemotherapy and radiation therapy
Acquired hypogammaglobulinemia	

854. D. All the above

Combination chemotherapy offers potentially curative therapy for DLBCL, regardless of the stage. The addition of the anti-CD20 antibody rituximab to cyclophosphamide, doxorubicin, vincristine, and prednisone (R-CHOP) improved survival beyond CHOP alone and is the standard first-line chemotherapy for this disease. For patients with early stage disease localized to a radiation field, treatment options include full course chemotherapy with R-CHOP every 3 weeks for 6 cycles, or abbreviated chemotherapy for 3–4 cycles followed by involved field radiotherapy. For advanced stage DLBCL, therapy is with a full course of chemotherapy. On average, about 60–65% of patients with DLBCL can be expected to be cured with this approach.

855. B. HHV-8

This entity is another variant of diffuse large B-cell lymphoma that presents with pleural effusions, usually without apparent tumor mass lesions. It is most common in the setting of immune deficiency disease, especially AIDS, and is caused by human herpes virus 8 (HHV-8)/Kaposi's sarcoma herpes virus (KSHV). It is also known as body cavity–based lymphoma.

856. A. AML

Myeloblasts with auer rods can definitely be appreciated

857. C. ATRA

APL is a highly curable AML subtype, and ~85% of these patients achieve long-term survival with current approaches. APL has long been shown to be responsive to cytarabine and daunorubicin, but in the past patients who were treated with these drugs alone frequently died from DIC induced by the release of granule components by the chemotherapy-treated leukemia cells. However, the prognosis of APL patients has changed dramatically with the introduction of tretinoin (ATRA), an oral drug that induces the differentiation of leukemic cells bearing the t(15;17), where disruption of the RARA gene encoding a retinoid acid receptor occurs.

858. C. CLL

Characteristic smudge cells with an increased lymphocyte count can be appreciated.

859. D. All the above

Criteria for the Initiation of Therapy

Symptoms Indicating Need for Therapy in CLL
Evidence of progressive marrow failure (worsening of anemia or thrombocytopenia not due to autoimmune destruction)
Massive (£6 cm below costal margin), progressive, or symptomatic splenomegaly Massive (£10 cm), progressive, or symptomatic lymphadenopathy Autoimmune anemia or thrombocytopenia not responsive to standard therapy
Constitutional symptoms (one or more of the following: unintentional weight loss £10% over 6 months, significant fatigue, fevers £ 100.5° C for 2+ weeks without infection, night sweats for >1 month without infection)

860. D. All the above

Monoclonal antibodies given alone or in combination with chemotherapy were the first targeted therapies to be successful in CLL. Anti-CD20 monoclonal antibodies including rituximab, ofatumumab, and obinutuzumab are all used in this disease. Rituximab was the first agent to show a survival advantage in CLL.

861. A. Facial bone tumor

Burkitt's lymphoma has three major clinical presentations. The endemic (African) form presents as a jaw or facial bone tumor that spreads to extranodal sites including ovary, testis, kidney, breast, and especially to the bone marrow and meninges. The non-endemic form has an abdominal presentation with massive disease, ascites, and renal, testis, and/or ovarian involvement, and, like the endemic form, also spreads to the bone marrow and CNS. Immunodeficiency-related cases more often involve lymph nodes and may present as acute leukemia.

862. A. Adult T cell leukemia

Peripheral blood smear shows leukemia cells with typical "flower-shaped" nucleus. This is a feature of Adult T cell leukemia/lymphoma.

863. A. Cervical region

Most patients with classical HL present with palpable lymphadenopathy that is nontender; in most patients, these lymph nodes are in the neck, supraclavicular area, and axilla. More than half of the patients will have mediastinal adenopathy at diagnosis, and this is sometimes the initial manifestation. Subdiaphragmatic presentation of classical HL is unusual and more common in older males.

864. D. 1500

Hypereosinophilic Syndrome (HES)

Blood eosinophilia that is neither secondary nor clonal is operationally labelled as being "idiopathic." HES is a sub-category of idiopathic eosinophilia with persistent increase of the absolute eosinophil count to ≥1500/mm3 and presence of eosinophil-mediated organ damage, including cardiomyopathy, gastroenteritis, cutaneous lesions, sinusitis, pneumonitis, neuritis, and vasculitis. In addition, some patients manifest thromboembolic complications, hepatosplenomegaly, and either cytopenia or cytosis. Glucocorticoids are the cornerstone of therapy in HES. Treatment with

oral prednisone is usually started at 1mg/kg/d and continued for 1 to 2 weeks before the dose is tapered slowly over the ensuing 2 to 3 months. In patients who do not respond to usual therapy as outlined above, mepolizumab or alemtuzumab might be considered. Mepolizumab targets IL-5, a well-recognized survival factor for eosinophils. Alemtuzumab targets the CD52 antigen, which has been shown to be expressed by eosinophils but not by neutrophils.

865. A. Bone pain

Bone pain is the most common symptom in myeloma, affecting nearly 70% of patients. Persistent localized pain usually signifies a pathologic fracture. The bone lesions of myeloma are caused by the proliferation of tumor cells, activation of osteoclasts that destroy bone, and suppression of osteoblasts that form new bone. The increased osteoclast activity is mediated by osteoclast activating factors (OAFs) produced by the myeloma cells (mediated by several cytokines, including IL-1, lymphotoxin, VEGF, receptor activator of RANK ligand, macrophage inhibitory factor [MIP]-1α, and tumor necrosis factor [TNF]). The bone lesions are lytic in nature and are rarely associated with osteoblastic new bone formation due to their suppression by dickho-1 (DKK-1) produced by myeloma cells.

866. D. Kidneys are not involved

Renal failure occurs in nearly 25% of myeloma patients, and some renal pathology is noted in >50%. Of many contributing factors, hypercalcemia is the most common cause of renal failure. Glomerular deposits of amyloid, hyperuricemia, recurrent infections, frequent use of nonsteroidal anti-inflammatory agents for pain control, use of iodinated contrast dye for imaging, bisphosphonate use, and occasional infiltration of the kidney by myeloma cells all may contribute to renal dysfunction. The earliest manifestation of renal tubular damage in multiple myeloma is the adult Fanconi's syndrome (a type 2 proximal renal tubular acidosis), with loss of glucose and amino acids, as well as defects in the ability of the kidney to acidify and concentrate the urine. The proteinuria is not accompanied by hypertension, and the protein is nearly all light chains. Generally, very little albumin is in the urine because glomerular function is usually normal. When the glomeruli are involved, nonselective proteinuria is also observed. Patients with myeloma also have a decreased anion gap [i.e., $Na^+ - (Cl^- + HCO_3^-)$] because the M component is cationic, resulting in retention of chloride.

867. A. IgG

The serum M component will be IgG in 53% of patients, IgA in 25%, and IgD in 1%; 20% of patients will have only light chains in serum and urine.

868. D. Multiple myeloma

Serum β_2-microglobulin is the single most powerful predictor of survival and can substitute for staging in multiple myeloma. β_2-Microglobulin is the light chain of the class I major histocompatibility antigens (HLA-A, -B, -C) on the surface of every cell. Combination of serum β_2-microglobulin and albumin levels forms the basis for a three-stage International Staging System (ISS) that predicts survival.

869. A. MGUS

This is the diagnostic criteria for MGUS (Monoclonal Gammopathy of Undetermined Significance)

Smoldering Multiple Myeloma (Asymptomatic Myeloma)
Both criteria must be met:
• Sernm monoclonal protein (IgG or IgA) >30 g/L or urinary monoclonal protein >500 mg per 24 h and/or clonal bone marrow plasma cells 10-60%
• Absence of myeloma defining events oramyloidosis
Symptomatic Multiple Myeloma
Clonal bone marrow plasma cells or biopsy-proven bony or extramedullary plasmacytoma[a] and any one or more of the following myeloma defining events:
• Evidence of one or more end-organ damage that can be attributed to the underlying plasma cell proliferative disorder, specifically:
• Hypercalcemia: serum calcium >0.25 mmol/L [>1 mg/dL) higher than the upper limit of normal or >2.75 mmol/L (>11 mg/dL)
• Renal insufficiency: creatinine clearance <40 mL per min[b] or serum creatinine >177 pmol/L (>2 mg/dL)
• Anemia: hemoglobin value of >20 g/L below the lower limit of normal, or a hemoglobin value <100 g/L
• Bone lesions: one or more osteolytic lesions onskeletal radiography, CT, or PET-CT[c]
• Any one or more of the following biomarkers of malignancy:
• Clonal bone marraw plasma cell percentage [e]>60%
• Involved: uniinvolved serum free light chain ratiod [d]>100
• >1 focal lesions on MRI studiese

870. B. Oesophageal dysmotility

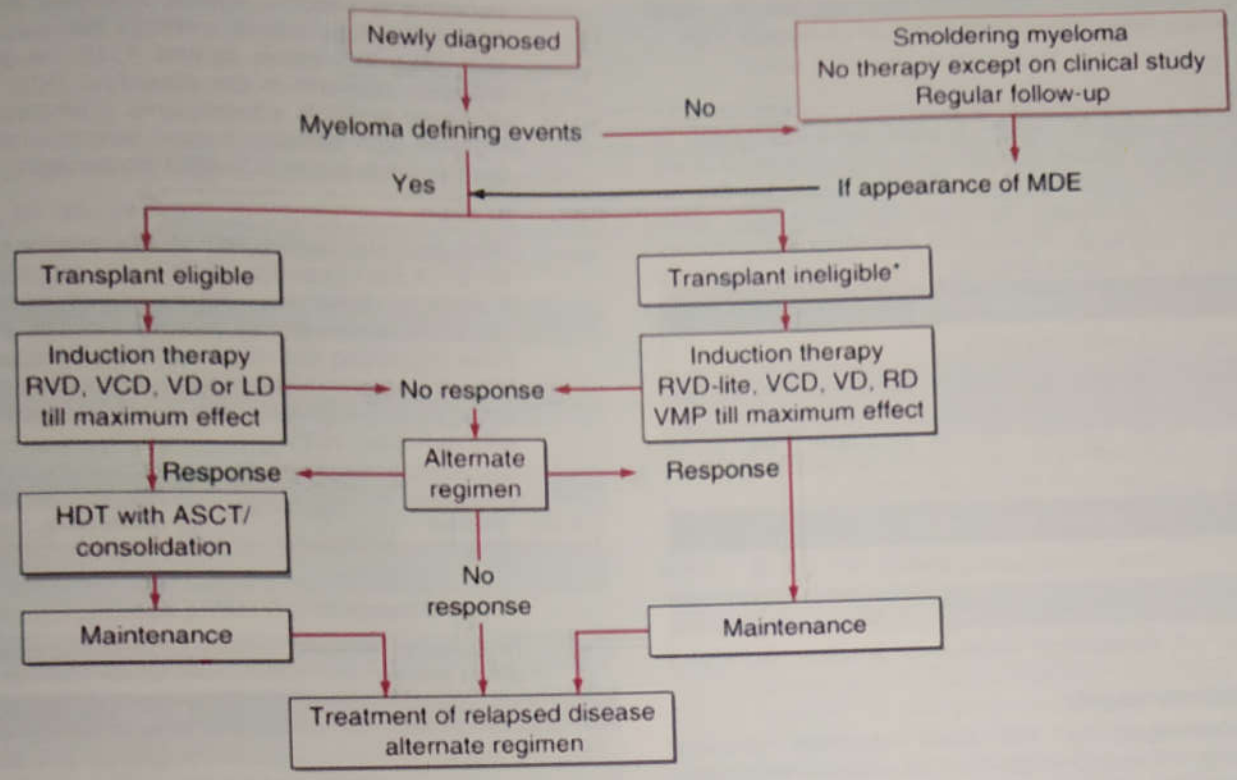
The features of this syndrome are polyneuropathy, organomegaly, endocrinopathy, M-protein, and skin changes (POEMS). Patients usually have a severe, progressive sensorimotor polyneuropathy associated with sclerotic bone lesions from myeloma.Unlike typical myeloma, hepatomegaly and lymphadenopathy occur in about two-thirds of patients, and splenomegaly is seen in one-third. The endocrine manifestations include amenorrhea in women and impotence and gynecomastia in men. Type 2 diabetes mellitus occurs in about one-third of patients. Hypothyroidism and adrenal insufficiency are occasionally noted. Skin changes are diverse: hyperpigmentation, hypertrichosis, skin thickening, and digital clubbing.

871. A. Edaravone

Edaravone is used in the treatment of motor neuron disease

Let's have a look at this treatment algorithm of multiple myeloma (Harrison 20th edition)

C, cyclophosphamide; D, dexamethasone; M, melphalan; P, prednisone; R, lenalidomide; RVD-lite, weekly regimen; V, bortezomib. Alternate regimen-combinations including daratumumab; elotuzumab; panobinostat; carfilzomib; ixazomib, pomalidomide or agents; ASCT, autologous stem cell transplantation; HDT, high-dose therapy; MDE, myeloma defining events.



* Due to age or co-morbidities.

872. B. Panobinostat

Bortezomib, Carfilzomib, Ixazomib are proteasome inhibitors. Lenalidomide is an immunomodulator. Daratumumab and Elotuzumab are monoclonal antibodies used in treatment of multiple myeloma.

873. A. IgM

In 1948, Waldenström described a malignancy of lymphoplasmacytoid cells that secreted IgM. It originates from a postgerminal center B cell that has undergone somatic mutations and antigenic selection in the lymphoid follicle and has the characteristics of an IgM-bearing memory B cell. Waldenström's macroglobulinemia (WM) and IgM myeloma follow a similar clinical course, but therapeutic options are different

874. A. MYD88

A distinct MYD88 L265P somatic mutation is present in >90% of patients with WM and the majority of IgM MGUS. Other commonly occurring mutations include CXCR4 (30–40%), ARID1A (17%), and CD79B (8–15%). Presence of MYD88 mutation status is now used as a diagnostic test to discriminate WM from marginal zone lymphomas (MZLs), IgM-secreting myeloma, and CLL with plasmacytic differentiation. This mutation also explains the molecular pathogenesis of the disease, with involvement of Toll-like receptor (TLR) and interleukin 1 receptor (IL-1R) signaling leading to activation of IL-1R–associated kinase (IRAK) 4 and IRAK1 followed by nuclear factor-kappa B (NF-kB) activation. MYD88 mutation also triggers Burton's tyrosine kinase (BTK), hemopoietic cell kinase (HCK) growth, and survival signaling, which are now important therapeutic targets in WM.

875. B. Seligmann's disease

Alpha heavy chain disease (Seligmann's disease) is the most common of the heavy chain diseases. It is closely related to a malignancy known as Mediterranean lymphoma, a disease that affects young persons in parts of the world where intestinal parasites are common, such as the Mediterranean, Asia, and South America. The disease is characterized by an infiltration of the lamina propria of the small intestine with lymphoplasmacytoid cells that secrete truncated alpha chains. Demonstrating alpha heavy chains is difficult because the alpha chains tend to polymerize and appear as a smear instead of a sharp peak on electrophoretic profiles.. The patients present with chronic diarrhea, weight loss, and malabsorption and have extensive mesenteric and paraaortic adenopathy. Some may develop diffuse aggressive histologies of malignant lymphoma.

876. A. Franklin's disease

Franklin's disease is characterized by lymphadenopathy, fever, anemia, malaise, hepatosplenomegaly, and weakness. It is frequently associated with autoimmune diseases, especially rheumatoid arthritis. Its most distinctive symptom is palatal edema, resulting from involvement of nodes in Waldeyer's ring, and this may progress to produce respiratory compromise.

877. D. CLL

One of the most devastating complications of CLL is Richter's transformation, transformation of CLL to an aggressive lymphoma, most commonly DLBCL. Clinical signs of Richter's transformation include rapid progression in adenopathy, oen in a specific area,

and constitutional symptoms including fatigue, night sweats, fever, and weight loss. LDH is usually high

878. B. CLL

There are two widely used staging systems in CLL: The Rai staging system is used more commonly in the United States, whereas the Binet system is more commonly used in Europe. Both characterize CLL on the basis of disease bulk and marrow failure . Both rely on physical examination and laboratory studies and do not require imaging or bone marrow analysis

Rai Staging System	
Low risk (stage 0)	Lymphocytosis only
Intermediate risk (stage I/II)	Lymphocytosis with lymphadenopathy, with or without splenomegaly or hepatomegaly
High risk (stage III/IV)	Lymphocytosis with anemia or thrombocytopenia due to bone marrow involvement
Binet Staging System	
A	areas of lymphadenopathy
e	>3 areas of lymphadenopathy
c	Hemoglobin <10 g/dL and/or platelets <100,000/μL

879. A. Splenomegaly

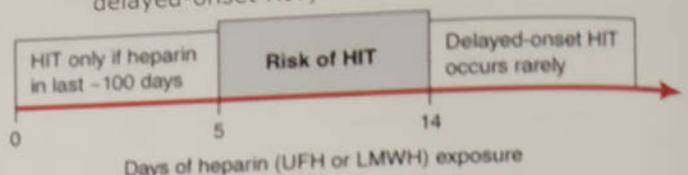
Splenomegaly is the most common physical finding, occurring in 20–70% of patients depending on health care screening frequency. Other less common findings include hepatomegaly (5–10%), lymphadenopathy (5–10%), and extramedullary disease (skin or subcutaneous lesions). The latter indicates CML transformation if a biopsy confirms predominance of blasts.

880. C. Ponatinib

Since 2001, six agents have been approved by the U.S. Food and Drug Administration (FDA) for the treatment of CML. These include five oral TKIs: imatinib, nilotinib, dasatinib, bosutinib, and ponatinib. Ponatinib is effective against wild-type, and mutant BCR-ABL1 clones. It is currently the only available BCR-ABL1 TKI active against T315I, a gatekeeper mutation resistant to the other four TKIs. The sixth approved agent is omacetaxine, a protein synthesis inhibitor with presumed more selective inhibition of the synthesis of the BCR-ABL1 oncoprotein.

881. B. 5-14

Most patients develop HIT after exposure to heparin for 5–14 days (see figure). It rarely can occur before 5 days in those who were exposed to heparin in the prior few weeks or months (<~100 days) and have circulating anti-heparin/PF4 antibodies. Rarely, thrombocytopenia and thrombosis begin several days after all heparin has been stopped (termed delayed-onset HIT)



Features of Heparin Induced Thrombocytopenia are given below:

Features	Details
Thrombocytopenia	Platelet count of <100,000/μL or a decrease in platelet count of >50%
Timing	Platelet cou nt falls 5-10 days after starting heparin
Type of heparin	More common with unfractionated heparin than low-molecular-weight heparin
Type of patient	More common in surgical patients and patients with cancer than general medical patients; more common in women than in men
Thrombosis	Venous thrombosis more common than arterial thrombosis

882. A. Type 1

VWD is the most common inherited bleeding disorder. It has been classified into three major types, with four subtypes of type 2 (see table). By far the most common type of VWD is type 1 disease, with a parallel decrease in VWF protein, VWF function, and FVIII levels, accounting for at least 80% of cases

Type	aPTT	VWF Antigen	VWF Activity	FVIII Activity	Moltimer
1	Nl or ↑	↓	↓	↓	Normal distribution, decreased in quantity
2A	Nl or ↑	↓	↓↓	↓	Loss of high- and intermediate-MW multimers
2Ba	Nl or ↑	↓	↓↓	↓	Loss of high-MW multimers
2M	Nlort	↓	↓↓	↓	Normal distribution, decreased in quantity
2N	↑↑	Nl or ↓	Nl or Ib	11	Normal distribution
3	↑↑	↓↓	↓↓	↓↓	Absent

883. C. X-linked recessive

Hemophilia is an X-linked recessive hemorrhagic disease due to mutations in the F8 gene (hemophilia A or classic hemophilia) or F9 gene (hemophilia B). Hemophilia A represents 80% of all cases. Male subjects are clinically affected; women, who carry a single mutated gene, are generally asymptomatic.

884. D. All the above

Important causes of venous thrombosis are given below :

Surgery
Neurosurgery
Major abdominal surgery
Malignancy
Antiphospholipid syndrome
Other
Trauma
Pregnancy
Long-distance travel
Obesity
Oral contraceptives/hormone replacement
Myeloproliferative disorders

885. D. 90%

Advantages of LMWH over unfractionated heparin is given below

Advantage	Consequence
Better bioavailability and longer half-life after subcutaneous injection	Can be given subcutaneously once or twice daily for both prophylaxis and treatment
Dose-independent clearance	Simplified dosing
Predictable anticoagulant response	Coagulation monitoring is unnecessary in most patients
Lower risk of heparin-induced thrombocytopenia	Safer than heparin for short- or long-term administration
Lower risk of osteoporosis	Safer than heparin for extended administration

886. B. P

Autoantibody to P antigen binds to RBCs in the cold and fixes complement upon warming. Antibodies with these biphasic properties are called Donath-Landsteiner antibodies. The P antigen is the cellular receptor of parvovirus B19 and also may be a receptor for Escherichia coli binding to urothelial cells.

887. A. Kell

The immunogenicity of Kell is third behind the ABO and Rh systems. The Kell protein is linked to another blood group protein termed Kx. The rare absence of this protein (controlled by a gene on X) is associated with weak KEL antigen, acanthocytosis, shortened RBC survival, and a progressive form of muscular dystrophy that includes cardiac defects. This rare condition is called the McLeod phenotype.

888. C. Febrile non haemolytic transfusion reactions

The most frequent reaction associated with the transfusion of cellular blood components is a febrile nonhemolytic transfusion reaction (FNHTR). These reactions are characterized by chills and rigors and a ≥1°C rise in temperature. FNHTR is diagnosed when other causes of fever in the transfused patient are ruled out. Antibodies directed against donor leukocyte and HLA antigens may mediate these reactions; thus, multiply transfused patients and multiparous women are felt to be at increased risk.

889. B. 5-7

Platelets are stored in plasma or in additive solution up to 5–7 days at 20–24°C and under permanent motion. The threshold for prophylactic platelet transfusion is 10,000/μL. In patients without fever or infections, a threshold of 5000/μL may be suicient to prevent spontaneous hemorrhage. For invasive procedures, 50,000/μL platelets is the usual target level.

890. D. All the above

FFP contains stable coagulation factors and plasma proteins: fibrinogen, antithrombin, albumin, as well as proteins C and S. Indications for FFP include correction of coagulopathies, including the rapid reversal of warfarin; supplying deficient plasma proteins; and treatment of auto-antibody-mediated thrombotic thrombocytopenic purpura (TTP). In the latter case, therapeutic plasma exchange allows both the removal of the autoantibody and the supplementation of the depleted enzyme (ADAMTS13). Other auto-immune diseases such as Guillain-Barré syndrome and myasthenia gravis may benefit from plasma exchange. FFP is an acellular component and does not transmit intracellular infections, e.g., CMV. Patients who are IgA-deficient and require plasma support should receive FFP from IgA-deficient donors to prevent anaphylaxis.

891. D. 80

Cryoprecipitate is a source of fibrinogen, factor VIII, and von Willebrand factor. It is ideal for supplying fibrinogen to the volume-sensitive patient. When factor VIII concentrates are not available, cryoprecipitate may be used since each unit contains ~80 units of factor VIII.

892. C. 7-10

This reaction presents as thrombocytopenia 7–10 days after platelet transfusion and occurs predominantly in women. Platelet-specific antibodies are found in the recipient's serum, and the most frequently recognized antigen is HPA-1a found on the platelet glycoprotein IIIa receptor. The delayed thrombocytopenia is due to the production of antibodies that react to both donor and recipient platelets. Additional platelet transfusions can worsen the thrombocytopenia and should be avoided. Treatment with intravenous immunoglobulin may neutralize the effector antibodies, or plasmapheresis can be used to remove the antibodies.

893. D. Both a and c

RBC leakage during storage increases the concentration of potassium in the unit. Neonates

and patients in renal failure are at risk for hyperkalemia. Citrate, commonly used to anticoagulate blood components, chelates calcium and thereby inhibits the coagulation cascade. Hypocalcemia, manifested by circumoral numbness and/or tingling sensation of the fingers and toes, may result from multiple rapid transfusions.

894. D. All

TRALI is among the most common cause of transfusion related fatalities. The recipient develops symptoms of hypoxia (PaO2/FiO2 < 300 mmHg) and signs of noncardiogenic pulmonary edema, including bilateral interstitial infiltrates on chest x-ray, either during or within 6 h of transfusion. Treatment is supportive, and patients usually recover without sequelae. The implicated donors are frequently multiparous women. Recipient factors that are associated with increased risk of TRALI include smoking, chronic alcohol use, shock, liver surgery (transplantation), mechanical ventilation with >30 cm H_2O pressure support and positive fluid balance.

895. D. All the above

Below is the list of paraneoplastic hematologic syndromes (Harrison 20th edition)

Syndrome	Proteins	Cancers Typically Associated with Syndrome
Erythrocytosis	Erythropoietin	Renal cancers, hepatocarcinoma, cerebellar hemangioblastomas
Granulocytosis	G-CSF, GM-CSF, IL-6	Lung cancer, gastrointestinal cancer, ovarian cancer, genitourinary cancer, Hodgkin'sdisease
Thrombocytosis	IL-6	Lung cancer, gastrointestinal cancer, breast cancer, ovarian cancer, lymphoma
Eosinophilic	IL-5	Lymphoma, leukemia, lung cancer
Thrombophlebitis	Unknown	Lung cancer, pancreatic cancer, gastrointestinal cancer, breast cancer, genitourinary cancer, ovarian cancer, prostate cancer, lymphoma

896. **What is this alternative method of eliciting plantar response?**

a. Oppenheim's sign
b. Wartenberg's sign
c. Hoffman sign
d. Chaddock sign

897. **A 45-year-old man presents to the emergency room with 1 day of headache and several hours of left arm heaviness. He fell off a ladder and hurt his neck the day before. In completing a full neurological examination, the emergency room physician additionally notes the abnormality shown here. Which of the following is the most likely test to demonstrate the etiology of the patient's symptoms?**

a. MRI Brain
b. Chest x-ray
c. Electroencephalogram
d. Magnetic resonance angiogram of the neck

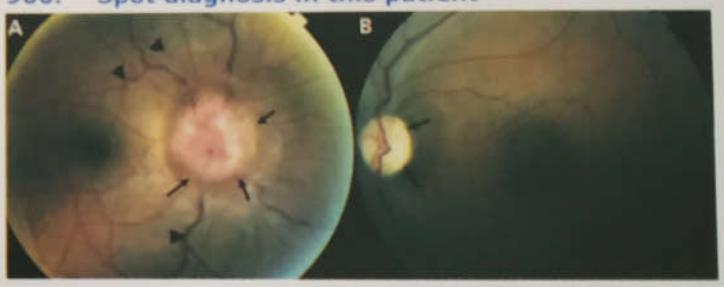
898. **What test is being performed here for a patient with suspected ankylosing spondylitis?**

a. Adson's test
b. Finkelstein test
c. Modified Schober test
d. None of the above

899. **A 28-year-old man comes to your clinic after a motor vehicle accident where he sustained a minor chest trauma. His physical examination is totally normal. A CBC reveals normal hemoglobin and WBC count with a platelet count of 80,000/μL. He is asymptomatic, has no excessive bleeding, has no past medical history, takes no medications, and does not use alcohol. His peripheral blood smear is shown in figure. Which of the following is the most likely diagnosis?**

a. Disseminated intravascular coagulopathy
b. Drug-induced thrombocytopenia
c. Idiopathic immune thrombocytopenia
d. Pseudothrombocytopenia

900. **Spot diagnosis in this patient**



a. Neurosyphilis
b. CNS tuberculosis
c. Foster Kennedy syndrome
d. CNS vasculitis

901. **5 days after an otherwise normal patient was started on ramipril for systemic hypertension, he presents with change in facial appearance as shown below. What is the likely diagnosis?**

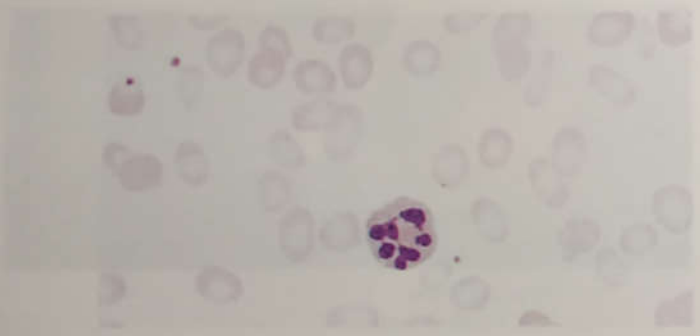
a. Redman syndrome
b. Nephrotic syndrome
c. Drug induced photosensitivity
d. Angioedema

896. a	897. d	898. c	899. d	900. c	901. d

902. **A 22-year-old man with known sickle cell anemia is admitted to the intensive care unit with diffuse body pain, shortness of breath, fever, and cough. On examination, his blood pressure and heart rate are elevated, and he is in obvious pain and respiratory discomfort. His room air arterial oxygen saturation (SaO2) is 83% and increases to 91% on oxygen face mask. His chest radiograph shows bilateral diffuse alveolar infiltrates. This is his third similar episode in the last 12 months. All of the statements regarding his condition are true EXCEPT:**

a. Chronic therapy with oral hydroxyurea should be considered.
b. He is having a sickle cell acute chest syndrome.
c. Hematocrit should be maintained at >30%.
d. Fluid restriction should be done

903. **A 28-year-old woman is referred to your clinic for evaluation of anemia. She reports fatigue on exertion in the past 6 months. She is a strict vegetarian. Menstrual cycles are regular with normal flow. The results of her complete blood count reveal a WBC count of 4000/mm3, platelet count of 2.35 lakh/mm3, and hemoglobin of 8 g/dL with MCV of 105 fL. Her peripheral smear is shown. She has normal renal and liver function. Which of the following is the most likely diagnosis?**

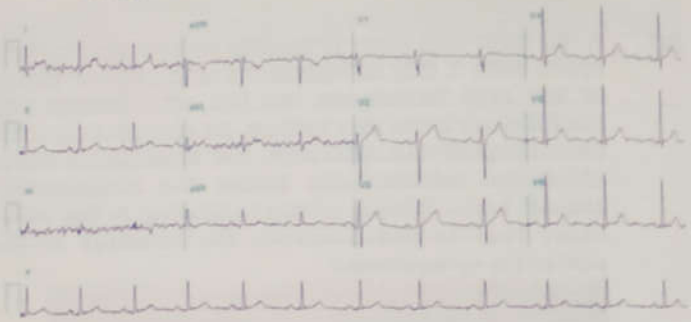


a. AML
b. Hereditary spherocytosis
c. Iron deficiency anaemia
d. Vitamin B12 deficiency

904. **A 16-year-old boy has a sore throat and the rash shown here, which started on the trunk and spread to the arms and legs but not the palms and soles. What is the most likely diagnosis?**

a. Measles
b. Kawasaki disease
c. Toxic shock syndrome
d. Scarlet fever

905. **64 year old male who was on metformin, enalapril and levo dopa presents comes to a general physician for routine check up. ECG was taken. What is the next line of management?**



a. Anticoagulation with IV heparin
b. Check serum TSH
c. Metoprolol 5 mg IV
d. No active intervention

906. **Painful ulcers developed on the thighs, abdomen, and legs (shown here) of a 47-year-old obese woman with end-stage renal disease who was receiving dialysis. She has secondary hyperparathyroidism. What is the diagnosis?**

a. Venous stasis ulcers
b. Atheroemboli syndrome
c. Mixed cryoglobulinemia
d. Calciphylaxis

902. d	903. d	904. d	905. d	906. d

907. **A 44-year-old woman with AML underwent a myeloablative allogeneic stem cell transplantation. She was profoundly neutropenic for 21 days and has had a persistent fever for the past 7 days. Today, she developed hypotension and tachycardia. On examination, she was sick looking and is tachypneic. Skin examination reveals a few scattered areas of hemorrhagic vesicles, the largest measuring 3 cm in diameter, on the hands and legs (See image) What is the most likely causative organism?**

a. N meningitidis
b. P aeruginosa
c. Rickettsia rickettsii
d. S aureus

908. **27-year-old man presents for evaluation of the skin lesions. On examination, he has deep-seated, painful nodules and plaques in the areas seen in the image below. All of the following diseases are classically associated with this skin finding EXCEPT:**

a. Inflammatory bowel disease
b. Lung adenocarcinoma
c. Mycobacterial infection
d. Sarcoidosis

909. **In this patient with acute left sided hemiparesis, which is the most likely arterial territory involved:**

a. Anterior cerebral artery
b. Superficial branch of MCA
c. Deep branch of MCA
d. Posterior cerebral artery

910. **A 71-year-old man presented to the nephrology department for the evaluation of chronic kidney disease, which had developed during the past 20 years. Physical examination findings are shown below. What is your diagnosis?**

a. Tuberous sclerosis
b. Von Hippel Lindau disease
c. Fabry's disease
d. Pheochromocytoma

911. **A patient presented with difficulty walking and urinary incontinence. On examination, his pupils were nonreactive to bright light but constricted when focusing on a near object. What is the diagnosis?**

a. Multiple sclerosis
b. Tabes dorsalis
c. Parinaud's syndrome
d. Horner's syndrome

912. **What is the most likely CSF finding from the lumbar puncture seen here in a patient with lower-extremity weakness?**

a. Lymphocytosis
b. Decreased sugar
c. Elevated protein
d. Decreased chloride

913. **Drug of choice for IgG4 related disease is?**

a. Azathioprine
b. Mycophenolate mofetil
c. Cyclophosphamide
d. Steroids

907. b	908. b	909. a	910. a	911. b	912. c	913. d

914. A 19-year-old female who has been in good health and takes no chronic medications, presents to you for new-onset severe fatigue and left upper abdominal pain. She was treated 2 days ago in the health center for presumed gonorrhea with ceftriaxone and azithromycin. Physical examination showed splenomegaly. Stool is negative for heme. Laboratory examination is notable for a hemoglobin of 5 g/dL with normal WBC and platelets. Peripheral blood smear shows evidence of hemolysis and excess of spherocytes. Which of the following tests will most likely confirm the diagnosis?

a. ADAMTS-13 activity assay
b. Direct antiglobulin test
c. Flow cytometry
d. Hemoglobin electrophoresis

915. Perifascicular atrophy is a specific feature of?

a. Polymyositis
b. Dermatomyositis
c. Inclusion body myositis
d. All

916. What percentage of patients with generalised myasthenia gravis have anti AchR antibody?

a. 25% b. 50%
c. 85% d. 100%

917. Most common gene mutation implicated in familial amyloid polyneuropathy?

a. Transthyretin b. Apolipoprotein A1
c. PARK-1 d. Gelsolin

918. Hatchet facies is seen in :

a. Systemic sclerosis b. Myasthenia gravis
c. Hypothyroidism d. Myotonic dystrophy

919. "Blue man syndrome" is related to the use of which drug?

a. Metoprolol b. Amiodarone
c. Vancomycin d. Chloramphenicol

920. Most common cause of GHRH mediated acromegaly?

a. Pancreatic islet cell tumor
b. Pheochromocytoma
c. Carcinoid tumor
d. Medullary thyroid cancer

921. Which of the following conditions is not associated with calcium pyrophosphate crystal deposition disease?

a. Hemochromatosis b. Hypermagnesemia
c. Gitelman's syndrome d. Hypophosphatasia

922. Identify the finding which is reversible on physical examination?

a. Rheumatoid nodules
b. Heberdens's nodes
c. Jaccoud's arthropathy
d. Pseudogout tophi

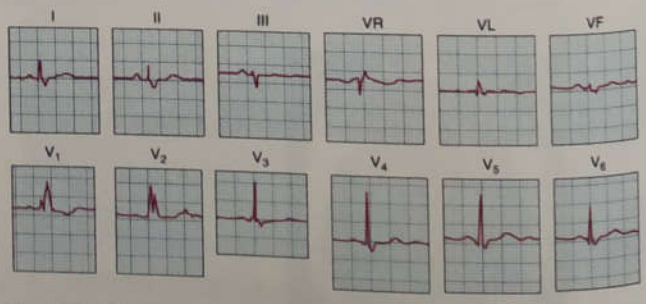
923. Most common type of Membranoproliferative glomerulonephritis?

a. Type I b. Type II
c. Type III d. None

924. A child was being evaluated by an endocrinologist for precocious puberty. His mother was also giving history of psychomotor delay and uncontrollable laughing episodes in the child. An MRI was ordered. What is the likely diagnosis?

a. Craniopharyngioma
b. Prolactinoma
c. Hypothalamic hamartoma
d. Pinealoma

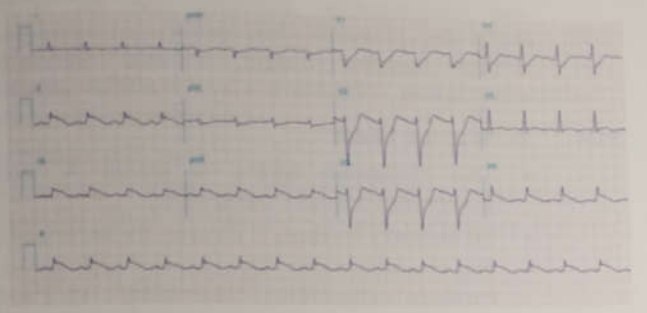
925. The ECG pattern shown below is consistent with:



a. First degree heart block
b. Right bundle branch block
c. P-pulmonale
d. Left bundle branch block

914. b	915. b	916. c	917. a	918. d	919. b	920. c	921. b	922. c	923. a	924. c	925. b

926. A 56-year-old construction worker with hypertension and a prior history of tobacco abuse presents to the emergency department with 30 minutes of acute-onset nausea, dyspnea, and chest pressure. His initial ECG is shown. All of the following are present in this ECG EXCEPT:



a. Inferior myocardial ischemia
b. Posterior myocardial ischemia
c. Sinus tachycardia
d. Ventricular tachycardia

927. Preferred option for treatment of alcoholic hepatitis with discriminant function above 32?

a. Steroid
b. Azathioprine
c. Pentoxifylline
d. Cyclophosphamide

928. Which of the following is a small molecule inhibitor that acts in rheumatoid arthritis by inhibiting JAK1 and JAK3?

a. Tofacitinib
b. Tocilizumab
c. Rituximab
d. Abetacept

929. Which of the following diseases produces this characteristic skin change?

a. SLE
b. Systemic sclerosis
c. Sjogren syndrome
d. Sarcoidosis

930. Not a feature of Carney complex?

a. Pituitary hyperplasia
b. Atrial myxomas
c. Hyperparathyroidism
d. Schwannomas

931. Hunt-Hess scale and World Federation of Neurologic Society Scale are used for :

a. ST elevation MI
b. Non-ST elevation MI
c. Extradural hemorrhage
d. Subarachnoid haemorrhage

932. Which of the following is not a feature of extramedullary tumor :

a. Early corticospinal signs
b. Root pain
c. Abnormal CSF findings
d. Sacral sparing

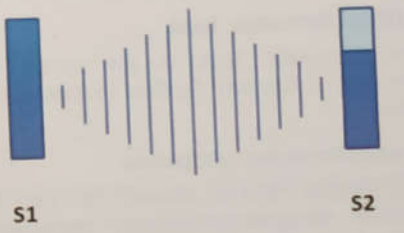
933. Most common mutation found in MODY is :

a. HNF 4 alpha
b. Glucokinase
c. HNF 1 alpha
d. HNF 1 beta

934. The following is device is used in :

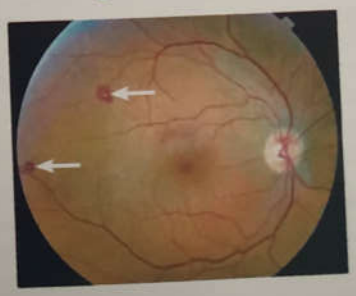
a. Removal of clot from cerebral circulation
b. Removal of clot from coronary circulation
c. Ventricular pacing
d. Closure of ASD

935. The following murmur pattern is seen in :



a. Aortic stenosis
b. Ventricular septal defect
c. Aortic regurgitation
d. Mitral regurgitation

936. A patient presented with a history of prolonged fever of 3 weeks duration. Given below are the fundus finding and a general examination finding. What is the diagnosis?



a. Tuberculosis
b. Syphilis
c. Infective Endocarditis
d. HIV

926. d	927. a	928. a	929. b	930. c	931. d	932. d	933. c	934. d	935. a	936. c

896. A. Oppenheim's sign

Oppenheim's reflex.
Method - A firm stroke with index finger and thumb is given down either side of the anterior margin of tibia.

897. D. Magnetic resonance angiogram of the neck

Given the history of recent trauma, the most likely cause of this patient's left arm weakness and right Horner syndrome is right carotid artery dissection. The sympathetic chain runs inside the carotid sheath in the neck and, in the case of cervical carotid dissection, may cause an ipsilateral Horner syndrome with contralateral symptoms of anterior circulation stroke. So MRA can be used to visualise the dissection.
MRI of the brain may demonstrate evidence of ischemia related to the carotid dissection, but would not be the most direct means of diagnosing the problem. Chest x-ray would be a reasonable test to look for a Pancoast tumor, which may cause ipsilateral Horner syndrome. However, in the event that the brachial plexus were also affected by a Pancoast tumor, the weakness would also be ipsilateral. Further, the recent trauma in this patient reduces the likelihood of a tumor. Electroencephalogram would not be a useful test in this patient, because seizure would be quite unlikely to cause Horner syndrome.

898. c. Modified Schober test

Modified Schober Test is for range of motion assessment of lumbar flexion in patients with low back pain:

899. D. Pseudothrombocytopenia

The peripheral blood smear is not consistent with true thrombocytopenia because of the clumped enlarged platelets (see figure below). Pseudothrombocytopenia is an in vitro artefact resulting from platelet agglutination via antibodies (usually IgG, but also IgM and IgA) when the calcium content is decreased by blood collection in ethylenediaminetetraacetic acid (EDTA) .

900. C. Foster Kennedy syndrome

B shows Optic atrophy and A shows Papilledema. This condition with ipsilateral optic atrophy and contralateral papilledema is called Foster Kennedy syndrome. Common etiologies are olfactory groove meningioma or frontal lobe glioma. The ipsilateral optic atrophy is due to compression of optic nerve by the tumor and contralateral papilledema is due to raised intracranial pressure.

901. D. Angioedema

ACE inhibitors can produce angioedema as side effect.

902. D. Fluid restriction should be done

The diagnosis is Acute chest syndrome. One of the cardinal steps in the management of acute chest syndrome is to maintain good hydration.

903. D. Vitamin B12 deficiency

Correlating clinical setting (strict vegetarian), clinical feature (fatigue on exertion-due to anaemia), lab investigation showing low Hb with raised MCV and normal other cell counts and peripheral smear showing macrocytes and hypersegmented neutrophils, diagnosis is Vitamin B12 deficiency.

904. D. Scarlet fever

- The causative agent is group A streptococcus(Streptococcus pyogenes)
- Strawberry tongue is caused by enlarged papillae
- The characteristic "sandpaper" rash spreads from trunk to extremities, beginning 1 to 2 days after initial fever, sore throat, and vomiting. Circumoral pallor also is present in many cases.
- After about a week,the rash desquamates,as do the palms and soles
- Hyperpigmentation in the bend of the elbow (Pastia's sign) is also said to be pathognomonic of scarlet fever

905. D. No active intervention

This patient was on levodopa ,most likely he is having Parkinson's disease. You have always got to be careful while reading ECG of Parkinson's patient. This ECG illustrates tremor artefact, most notable in leads I, III, and aVL (thus making it likely that the tremor is occurring in the left arm). It is easy to confuse tremor artefact with atrial flutter or atrial fibrillation. Note the normal sinus P waves in lead II and all the precordial leads. No further testing is needed for this ECG.

906. D. Calciphylaxis

- Calcification of the media of small arteries and arterioles leads to ischemic necrosis and ulceration
- Initially the lesions appear violaceous. These often become hard, indurated, and ulcerated with overlying eschar

907. B. P aeruginosa

Ecthyma gangrenosum is a typical rash marked by hemorrhagic vesicles surrounded by a rim of erythema with central necrosis and ulceration. This finding is seen in sepsis caused by Pseudomonas aeruginosa most commonly and can also be seen with Aeromonas hydrophila. Sepsis due to these organisms most frequently occurs in individuals with prolonged neutropenia, extensive burns, or hypogammaglobulinemia.

908. B. Lung adenocarcinoma

This is erythema nodosum, a panniculitis classically found on the lower extremities characterized by exquisitely tender nodules and plaques. It has several associated disease etiologies including infections (streptococcal, fungal, mycobacterial, yersinial), drugs (sulfas, penicillins, oral contraceptives), sarcoidosis, and other autoimmune diseases such

as inflammatory bowel disease. Lung cancer is not a classically associated disease for erythema nodosum.

909. A. Anterior cerebral artery

CT shows hypodensity in the right ACA territory.

910. A. Tuberous sclerosis

Diagnosis is Tuberous sclerosis. Findings are adenoma sebaceum and periungual fibromas. The chronic kidney disease is probably due to associated renal angiomyolipoma.

911. B. Tabes dorsalis

Pupils that are nonreactive to bright light but briskly constrict when focusing on a near object are known as Argyll Robertson pupils, which are characteristic of tabes dorsalis.

912. C. Elevated protein

The combination of elevated protein, xanthochromia, and hypercoagulation of CSF is pathognomonic for Froin's syndrome, which can occur with blockage of CSF flow by a spinal cord mass or with meningeal irritation from meningitis.

913. D. Steroids

Steroids are the drug of choice for IgG4 related disease. Rituximab can be used as add on agent. Steroid sparing agents like Azathioprine and mycophenolate mofetil are of doubtful benefit only in IgG4 related disease.

914. B. Direct antiglobulin test

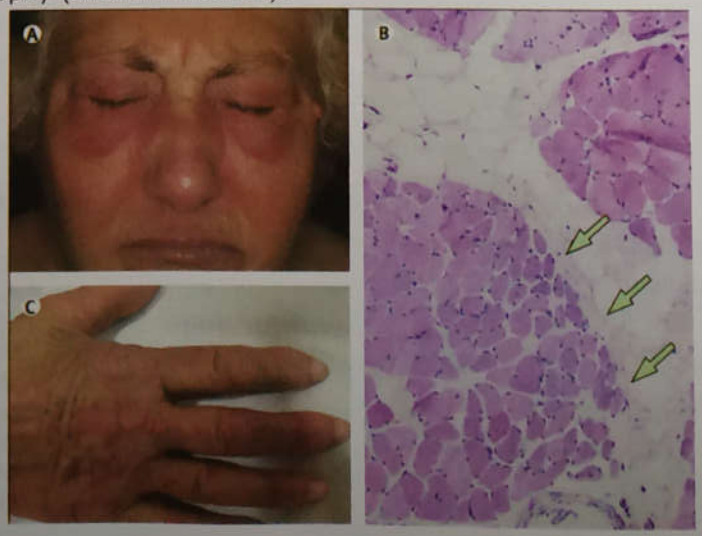
The patient has autoimmune hemolytic anemia (AIHA) with development of warm immunoglobulin G (IgG) antibodies due to ceftriaxone exposure.

	Type of Antibody	
Clinical Setting	**Cold, Mostly IgM, Optimal Temperature 4-30°C**	**Warm, Mostly IgC, Optimal Temperature 37°C; or Mixed**
Primary	CAD	AIHA (idiopathic)
Secondary to viral infection	EBV	HIV
	CMV	Viral vaccines
	Other	
Secondary to other infection	Mycoplasma infection: paroxysmal cold hemoglobinuria	
	Lymphoma	
Secondary to/associated with other disease	CAD in: Waldenstrom disease	AIHA in: SLE
		CLL
		Other malignancy
		Chronic inflammatory disorders (e.g., IBD) After allogeneic HSCT
Secondary to drugs: drug-induced immune hemolytic anemia	Small minority (e.g., with lenalidomide)	Majority: currently most common culprit drugs are cefotetan, ceftriaxone, piperacillin

915. B. Dermatomyositis

PERIFASCICULAR ATROPHY is a highly specific feature of muscle biopsies of patients with dermatomyositis (specificity > 90%).

The image shows a female who presented with muscle weakness having heliotrope rash and gottron's papules. Biopsy showed perifascicular atrophy (shown in arrows).



916. C. 85%

Important Topic - Antibodies In Myasthenia Gravis

- Antibodies to acetylcholine receptor antibodies (anti-AChR) is virtually diagnostic of MG, but negative test does not exclude the disease.
- Anti-AChR antibodies are detected in the serum of ~ 85 % of all myasthenic patients, but only in about 50 % of patients with weakness confined to the ocular muscles.
- 40 % of generalised MG patients who are negative for anti-AChR antibody have antibodies to MuSK.
- MuSK antibodies are rarely present in anti-AChR antibody positive patients or in patients with ocular MG.
- Patients with MuSK antibody positive MG responds less well to thymectomy than those with AChR antibody.
- Patients with MuSK antibody positive MG responds less well to anticholinesterase medications than those with AChR antibody

917. A. Transthyretin

Familial amyloid polyneuropathy is caused by mutations in the gene coding for transthyretin, apolipoprotein A1 or gelsolin. Most commonly it is due to transthyretin mutation. It is predominantly an axonal neuropathy.

918. D. Myotonic dystrophy

The prominent temporalis, masseter and facial muscle atrophy and weakness causes "hatchet facies" in myotonic dystrophy

919. B. Amiodarone

Long term amiodarone therapy is associated with dermatological side effects. Most common is photosensitivity. Sometimes, there can be a bluish-slate gray discoloration of the skin (called "blue man syndrome"), which is most prominent on the face.

920. C. Carcinoid tumor

- GH hypersecretion is usually the result of somatotrope adenoma.
- Rarely ectopic GHRH secretion can also mediate acromegaly.
- The most common cause of GHRH mediated acromegaly is a chest or abdominal carcinoid tumor.

Causes of Acromegaly

	Prevalence, %
Excess Growth Hormone Secretion	
Pituitary	98
Densely or sparsely granulated GH cell adenoma	60
Mixed GH cell arwJ PRI cell adenoma	25
Mammosomaioiropo cell adenoma	10
PLuriharmonal adenoma	
GH cell carcinoma or metastases	
Multiple endocrine neoplasia l (GH cell adenoma)	
McCuno Albright syndrome	
Ectopic sphenoid or parapharyngeal sinus pituitary adenoma	
Extrapituitary tumor	
Pdncreatic islet cell tumor	
Lymphoma	
Excess Growth Hormone-Releasing Hormone Secretion	
Central	<1
Hypothalarnic hamartoma, choristoma. ganglioneuroma	<1
Peripheral	<1
Bronchial carcinoid, pancreatic islet cell tumor, small cell lung cancer, adrenal adenoma, medullary thyroid carcinor na^ pheocl i rorn ocy lor na	

921. B. Hypermagnesemia

Conditions associated with CPPD disease are :

- Primary hyperparathyroidism
- Hemochromatosis
- Hypophosphatasia
- Hypomagnesemia
- Gitelman's syndrome

922. C. Jaccoud's arthropathy

In Jaccoud's arthropathy, the deformities are reversible and result mainly from soft-tissue abnormalities, such as laxity of ligaments, fibrosis of the capsule, and muscular imbalance, rather than from destruction of the bone of joints, as occurs in rheumatoid arthritis.

Jaccoud's arthropathy was initially described in relation to rheumatic fever, but now more cases are seen in association with SLE, other connective tissue diseases and neoplasias

Rheumatoid deformities are not reversible

923. A. Type I

Most common type of MPGN is type I. Type I is commonly associated with persistent hepatitis C infections, autoimmune diseases or neoplastic diseases.

Type I Disease—Most Common
Idiopathic
Subacute bacterial endocarditis
S ystemic lupus erythematosus Hepatitis C and cryoglobulinemia Mixed cryoglobulinemia Hepatitis C
Cancer: lung, breast and ovary (germinal)
Type II Disease
Idiopathic
Dense Deposit Disease (immunoglobulin-mediated) Type III Disease
Idiopathic

924. C. Hypothalamic hamartoma

Hypothalamic hamartoma presents with gelastic seizures/laughing associated seizures

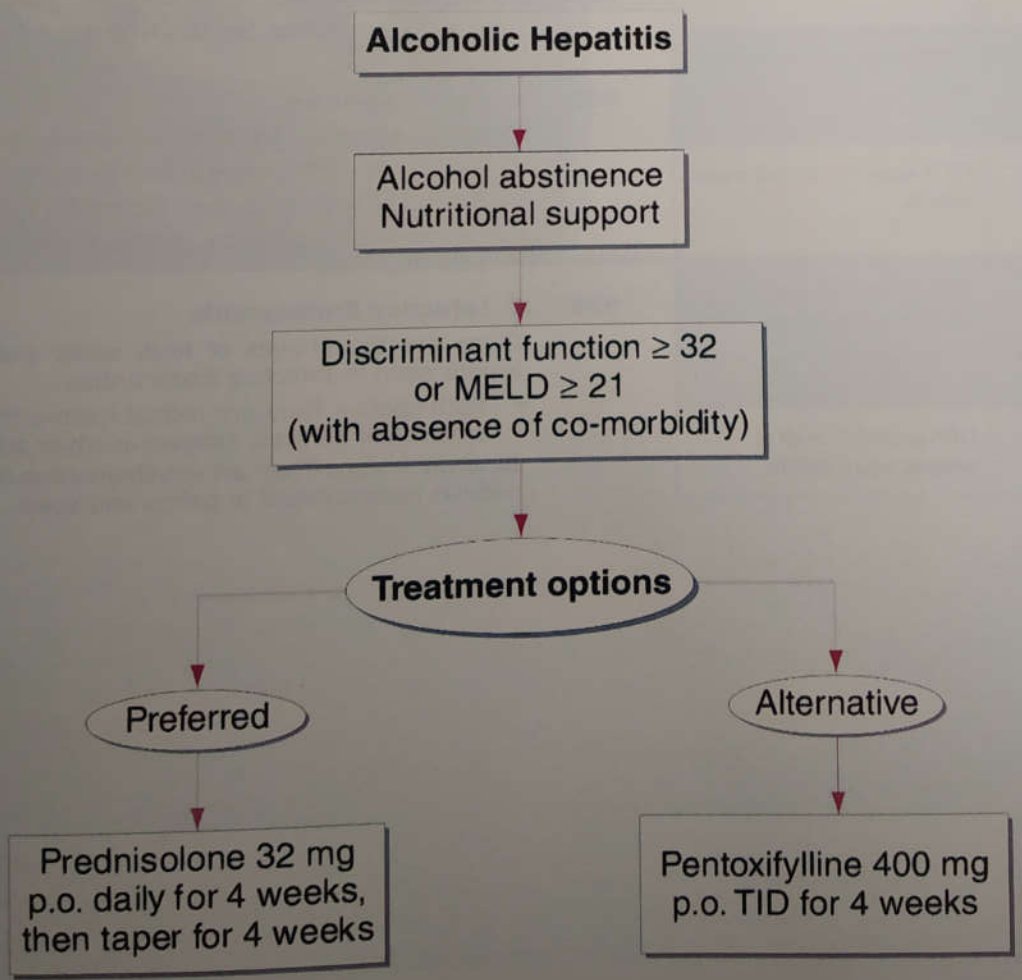
925. B. Right bundle branch block

This ECG exhibits classic findings of a right bundle branch block with an rSR′ in V_1 and broad-based terminal S wave in I, II, and V_6. Left bundle branch block would have a similarly wide QRS, but with the terminal deflections on the QRS occurring with a leftward and posterior vector leading to a large R pattern in I and V_6 and a QS pattern in V_1. P-pulmonale is a term used to indicate right atrial abnormality or enlargement, seen on ECG as a tall P wave in lead II or V_1 (>2.5 mm). First-degree heart block is seen as a PR interval >200 msec (one large box on a standard-speed ECG).

926. D. Ventricular tachycardia

Patient is suffering an acute inferolateral myocardial infarction (MI). Note the ST elevations in the inferior leads (II, III, aVF) and in V_6 (lateral precordial lead). Also, the striking ST depressions in the anterior precordial leads (V_1–V_4) are indicative of posterior ischemia. Here, the presence of ST depressions in an anterior lead represents the "mirror" of ST elevations in a posterior location. One can visualize the ECG pattern in the anterior leads upside down to see the reciprocal nature of the ST depressions. Although on initial glance, the QRS pattern appears wide in the anterior leads suggesting ventricular tachycardia, on further examination, there are P waves present that are associated with each QRS (seen most clearly in leads II and V_1); thus, the rhythm is sinus tachycardia.

927. A. Steroid



928. A. Tofacitinib

Tofacitinib is a small molecule inhibitor that primarily inhibits JAK1 and JAK3 which mediate signalling of the receptors for the common cytokines that promote inflammation in Rheumatoid arthritis

929. B. Systemic sclerosis

Salt and pepper skin is a feature of systemic sclerosis. The depigmentation spares the peri-follicular areas

930. C. Hyperparathyroidism

Carney complex is an autosomal dominant disorder. The gene mutation implicated is PRKAR1A.

Features are :

- Cushing's syndrome
- Pituitary hyperplasia and adenomas
- Atrial myxomas
- Schwannomas
- Adrenal hyperplasia
- Lentigines

931. D. Subarachnoid haemorrhage

Grading Scales For Subarachnoid Hemorrhage

Grade	Hunt-Hess Scale	World Federation of Neurosurgical Societies (WFNS) Scale
1	Mild headache, normal mental status, no cranial nerve or motor findings	GCS[a] score 15, no motor deficits
2	Severe headache, normal mental status, may have cranial nerve deficit	GCS score 13-14, no motor deficits
3	Somnolent, confused, may have cranial nerve or mild motor deficit	GCS score 13-14, with motor deficits
4	Stupor, moderate to severe motor deficit, may have intermittent reflex posturing without motor deficits	GCS score 7-12, with or without motor deficits
5	Coma, reflex posturing or flaccid	GCS score 3-6, with or without motor deficits

932. D. Sacral sparing

Features	Extramedullary	Intramedullary
Pain	Radicular Pain	Funicular Pain
Vertebral Pain	Common	Uncommon
Sacral Sensations	Lost	Sparing
Dissociated Sensory Loss	Absent	Present
Paraesthesias	Ascending	Descending
Corticospinal Tract	Early	Late
Bladder	Late	Early
CSF proteins	Raised	Normal

933. C.

Most Common Type of Modyis Mody 3

MODY type	Gene mutated
MODY 1	HNF 4 alpha
MODY 2	Glucokinase
MODY 3	HNF 1 alpha
MODY 4	Insulin promoter factor 1
MODY 5	HNF 1 beta
MODY 6	Neuro D1

934. D. Closure of ASD

This is the Amplatzer Septal Occluder device used in closure of ASD

935. A. Aortic stenosis

Ejection systolic/Midsystolic murmur

- Crescendo-decrescendo configuration
- Begins after S1 and ends before S2
- Seen in Aortic stenosis, Pulmonic stenosis,HOCM, flow murmurs

936. C. Infective Endocarditis

Given are the images of Roth spots and Janeway lesions seen in Infective Endocarditis

- Roth spots - They are retinal haemorrhages with small clear centres. (shown in white arrows)

Janeway lesions-They are erythematous,non-tender nodular lesions found in palms and soles